



 Lee Valley

Sharpening by Hand

A Woodworker's Resource Guide



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Dear Customer,

I first learned to sharpen as a teenager, using the natural Arkansas oil stones we carried in our 1978 catalog. At that time, I did receiving work and remember unpacking crates of Washita, Soft, Hard White, and Hard Black stones of various sizes, each packed in a fitted cedar box embossed with a gold foil Lee Valley logo and cellophane wrapped. That first catalog had a selection of only two types of stones – the natural Arkansas stones, and the man-made India and Crystolon stones. The only hand sharpening aid was the Eclipse #36 honing guide.

Today, there is a dazzling array of choices for sharpening media and equipment. What hasn't changed over time is that you do not require a lot of different products to sharpen effectively – you just need the right combination for what you sharpen and how you work. A good sharpening regimen becomes part of your workflow, ensuring your tools are always performing at their best.

"Give me six hours to chop down a tree, and I will spend the first four hours sharpening the axe" is a quotation often incorrectly attributed to Abraham Lincoln that illustrates the importance of sharpening as part of a process (though one cannot help but wonder what ineffectual sharpening regimen takes four hours to put an edge on an axe).

We put this publication together with four main objectives: the addition of the complete Shapton line, the introduction of two new Veritas honing guides, the creation of an abrasive comparison chart, and the implementation of an editorial style with a focus on putting it all in context. We would encourage you to read this publication as you would a story in parts and not as a series of discrete product descriptions.

When it comes to sharpening, everyone has "an axe to grind," but only you can determine the best choice for yourself. We hope these pages help.

Cheers,

Robin C. Lee
Chief Executive Officer

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How Fine is "Fine"?

When it comes to grading sharpening media, there are several standards used by manufacturers. For abrasive papers, the two most common standards are the US CAMI (Coated Abrasives Manufacturers Institute) standard and the European FEPA (Federation of European Producers of Abrasives) paper standard, which prefixes paper-based grits with the letter P. Japanese manufacturers often use the JIS (Japanese Industrial Standard). Other standards include the FEPA F (for stones and wheels) and the ANSI (American National Standards Institute) standards. At the low end of the scale, say 60x, the five standards are numerically close – CAMI 60x is 268 μ , FEPA P60 is 269 μ , and JIS J60x is also 269 μ . The scales diverge at different rates as the grits get finer: in the 5 μ to 7 μ range, FEPA paper is 5000x, ANSI is 1000x and FEPA F is 800x. All of this can make it difficult to compare grit sizes among manufacturers.

	FEPA P	FEPA F	JIS			
	Paper	Grain	Japan	ANSI	CAMI	Microns
Coarse Grits				70		288
	P60		J60			269
					60	268
		F60				260
Fine Grits		F400				17.3
			J1000	500	600	16
	P1200					15.3
		F800			1200	6.5
Extra-Fine Grits				1000		6.33
	P5000		J3000			5

Our Grit Selection Chart

We have chosen to use effective (or actual) micron grit size as the scale by which we can compare the effective fineness of stones, understanding that particle size alone is not the only determinant of finish. Factors such as grit shape, bonding material and grit durability can all influence effective fineness. We charted five grit standards using micron grit sizes from 4125 μ , down to 0.3 μ , and added Shapton stones, ceramic stones, water stones, diamond stones, oil stones and specialized sheet abrasives to create a table of relative fineness. You can see a condensed chart on the back cover; the full chart can be found by searching for "grit chart" on our website.

Moving from a damaged edge to an ultimate edge involves four stages of sharpening:

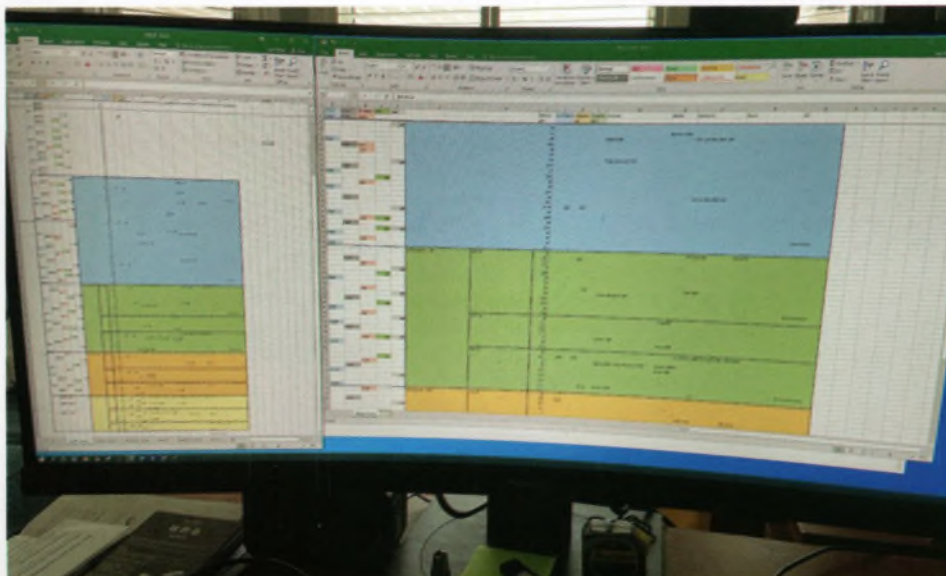
1. **Shaping:** establishing the basic profile of the tool, usually required only after major damage
2. **Grinding:** establishing the geometry that defines the edge – bevels and relief
3. **Honing:** preparing the blade for use
4. **Polishing:** imparting a keener edge to a honed blade

We divided our chart into grit ranges appropriate for each sharpening stage, with the last three ranges split into three subranges (low, medium and high, designated by letters A, B and C). Grouping them together in micron-size-based bands reduces the complexity of comparing different products. Conceptually, it makes selecting a sharpening solution for each stage easy while choosing abrasive solutions that complement what you may already own. A good general rule is that for each sharpening stage, you want to move from one range to the next, keeping two or more divisions difference between steps.

Sharpening Stage	Grit Range (μ)	Range Code
Shaping 30.1–150	30.1–150	1
Grinding 10.1–30	20.1–30	2A
	15.1–20	2B
	10.1–15	2C
Honing 3.01–10	8.01–10	3A
	6.01–8	3B
	3.01–6	3C
Polishing 0.25–3	1.51–3	4A
	0.76–1.5	4B
	0.25–0.75	4C

Example 1: A good complement for a King 800x stone (2B) would be something in the (3B) or (3C) range; a Shapton 2000, a King 4000 or a 5 μ diamond paper would all be appropriate choices.

Example 2: A sheet-abrasive-only solution could be 360x (1), 3M 9 μ sheet (3A) and 3M 3 μ (4A). Using this system, you can see at a glance where each product in this catalog falls in the abrasive spectrum and quickly identify what products would be complementary.



Full Grit Charts

The grit charts in this publication have been edited to fit the space available. The full-size chart, ranging from 4125 μ down to 0.3 μ , can be found on our website by searching for "grit chart." It contains data on five abrasive standards (FEPA-P, FEPA-F, JIS-R6001, ANSI, and CAMI), as well as relative grading of the Shapton line, ceramic stones, water stones, diamond stones, oil stones and specialty sheet material.

How to Sharpen



Sharp Tools Make Better Woodworkers

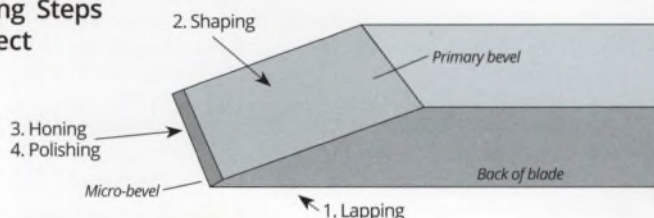
Along with understanding the basic characteristics of wood, knowing how to sharpen your tools is one of the most important skills in woodworking. Sharp tools are safer to use than dull ones, and a sharp tool behaves predictably and requires much less effort for the task at hand. Having an efficient and repeatable sharpening workflow is essential, and getting your tools sharp is not difficult.

Sharpening involves the three key steps of lapping the back of the blade (#1), shaping or grinding the bevel of the blade (#2) and honing the edge (#3). Some woodworkers add the step of polishing the edge (#4) to achieve a higher level of keenness for fine woodworking.

This guide explains the main points of sharpening as well as the purpose and use of the many guides, fixtures, media and accessories designed to make sharpening a breeze.



Four Key Sharpening Steps and How They Affect Blade Geometry



1. Lapping the Back of a Blade

A critical yet often overlooked step in the sharpening process is lapping or flattening the back of the chisel or plane iron. The back of the blade forms half of the cutting edge and is essential to achieving a sharp edge. This step is usually done only on a new blade before its first sharpening to prepare it for a lifetime of use. Most new chisels and plane irons come already lapped on the back; however, a factory grind is no substitute for a full treatment on an extra-fine finishing stone.

Begin by marking the back of the blade near the cutting edge with a marker to indicate the material to be removed. Generally, only the area nearest the cutting edge and the sides of the blade need to be lapped. Most important, this area needs to be polished to the same degree as the bevel side of the blade to ensure both surfaces meet at a consistent sharp edge once sharpening is complete.

Once the back of the blade has been lapped flat, it is unlikely the blade will ever need to be lapped again. A little time up front makes the process much smoother for the long term.

2. Shaping the Bevel of the Blade

Most edge tools for woodworking have a flat back and a bevelled face, which allows the tool to slice into wood fibers. The angle of the bevel is determined by its intended use. Generally, low-angle blades (10° to 20°) are designed for paring or slicing operations, and medium angles (20° to 30°) are common for bench chisels, many planes and small tools such as spokeshaves. High angles ($30^{\circ}+$) are for durable edges such as mortise chisels, where the blade takes lots of abuse from pounding, as well as in some very low-angle planes.

Typically, blades will come pre-ground with the bevel angle for the intended purpose and will require a minor tune-up before honing. Other times, it is necessary to regrind the bevel when you want to change the angle or the face of the primary bevel for a specific purpose. Woodworkers who work mainly with softwoods such as pine and cedar may want a lower angle on some tools to permit more of a slicing action, where edge durability is less important. Others may want a higher angle to achieve a more durable edge for hardwoods, figured woods and very hard exotics. Adjusting the bevel of a tool allows customization to the task at hand.

Usually, a bevel requires reshaping when the micro-bevel becomes too high on the blade, making the honing process take too long. Generally, when the micro-bevel takes up half the primary bevel, it's time to regrind the primary bevel. For many woodworkers, this could mean reshaping the bevel every 15 to 20 times the edge is honed.

So how is a bevel shaped? With the blade set in the guide at the desired angle, the blade is shaped on coarse media to remove the bulk of the material and finished with a medium or fine stone before honing the edge. Many woodworkers continue with very fine grits to get a mirror polish on the primary bevel; as the primary bevel does not do any of the cutting, this is purely an aesthetic choice.

Four Key Sharpening Steps



1. Lapping the back of a plane iron on the finest stone ensures it is prepared for a lifetime of sharpening.



2. A coarse diamond plate will quickly shape a bevel, followed by a medium stone to remove the scratches left by the diamond plate.



3. Honing the cutting edge on a fine stone prepares it for general use or refines the edge for polishing.



4. Polishing the cutting edge on an extra-fine stone prepares the edge for fine woodworking.

3. Honing the Edge

While lapping the back and shaping the bevel are key steps in the preparation of a blade, only the honing of the edge prepares the cutting edge of the blade for use.

For a blade already prepared with a primary bevel, the blade is mounted in the guide at the micro-bevel angle. A few passes by pulling the blade toward you on the finest stone will establish a keen edge. Once you feel a burr along the entire back edge of the blade, honing is complete. Honing only enough to raise a burr will both save time and allow a greater number of honings before it is necessary to reshape the primary bevel. Often, only eight to ten passes are needed on the fine stone. Then remove the blade from the guide and lap the back on the finest stone to remove the burr.

With efficient workflow, a plane iron can be mounted in the guide, honed, lapped and ready to go back in the plane in less than a minute, reducing sharpening time so you can get back to work.

4. Polishing the Edge

Honing the blade prepares it for woodworking. The keenness of the edge depends on the fineness of the sharpening media used to hone it. Typically, woodworking tools are honed on an 8000x stone or equivalent ($\sim 3\mu$), which is perfect for routine cutting operations. For certain applications, such as final smoothing, or working in difficult materials such as very hard or highly figured woods, it is beneficial to polish the edge to a higher degree.

A blade can be polished in a number of ways, but generally, the use of finer grits will take a blade to a higher level of keenness; however, the keener the edge, the less durable it becomes. The abrasion of the wood will dull a very keen edge faster, making more frequent polishing necessary to maintain that keenness.

Stropping is also a popular way to increase the keenness of an edge, either with the use of honing compound (0.5μ) or plain wood or leather. Sharpening media exist with much finer grits ($<1\mu$) to allow an edge to be polished to razor sharpness if necessary for a given task.

Honing Guides



Side-clamping honing guide

Short-blade honing guide

Mk.II standard honing guide

Use a Honing Guide

The easiest way to get consistent results and a sharpening workflow that is quick and easily repeatable is to use a guide. A honing guide holds the blade at the correct angle and makes quick work of sharpening the edge, regardless of the sharpening media used.

Choosing a Guide

The complete range of Veritas honing guides provides a sharpening solution for every type of blade in the workshop. The new side-clamping honing guide is a flexible and simple-to-use guide for most chisel and plane iron sharpening tasks. The new short-blade honing guide is a unique holding solution for even the most difficult blades that need sharpening. The established Mk.II honing guide system and its accessories will provide a holding solution for the most demanding of woodworkers. To assist in making the right choice, the chart at right provides a snapshot of all the guides and the types of sharpening situations for which they are best suited.

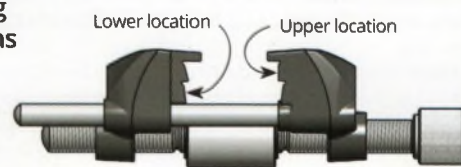
Tool	Veritas Honing Guide			
	Side Clamping	Short Blade	Standard	Narrow Blade
Bench Chisels	✓		✓	✓
Butt Chisels			✓	✓ <1.5"
Bench Plane Blades	✓	✓	✓	
Tapered Block Plane Blades		✓	✓	
Vintage Block & Bench Plane Blades	✓	✓	✓	
Veritas Plane Blades	✓	✓	✓	
Spokeshave Blades (flat)		✓	✓ w/holder	
Narrow Chisels (<1/4")	✓			✓
Skew Chisels		✓	✓	

Veritas Side-Clamping Honing Guide

The tried-and-true design of a side-clamping guide is familiar to most woodworkers. Our side-clamping honing guide is a piece of modern-day engineering that improves on this established design while maintaining the flexibility of this type of guide. Chisels and plane blades ranging from 1/8" (3mm) to 2 1/2" fit securely for accurate honing. The unique three-point holding position holds odd shapes such as plow and shoulder plane blades.

The guide has two different blade positions (upper and lower) that support most types and lengths of chisels and plane blades in a balanced, ergonomic set-up. Most woodworkers will find one of these positions best suits their specific needs and will build a registration jig for that position.

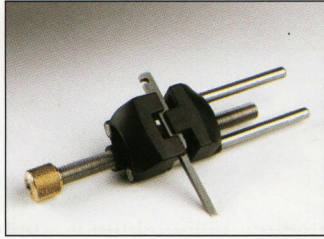
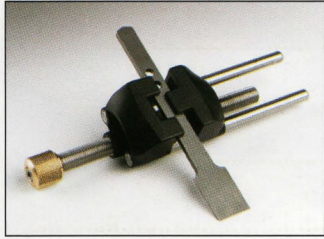
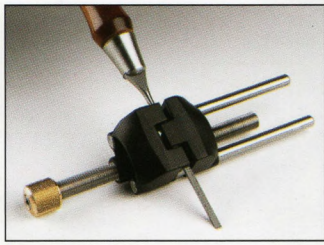
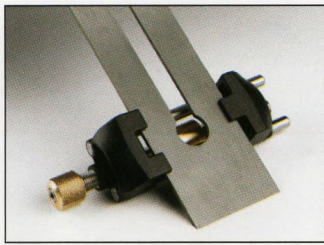
Side-Clamping Blade Positions



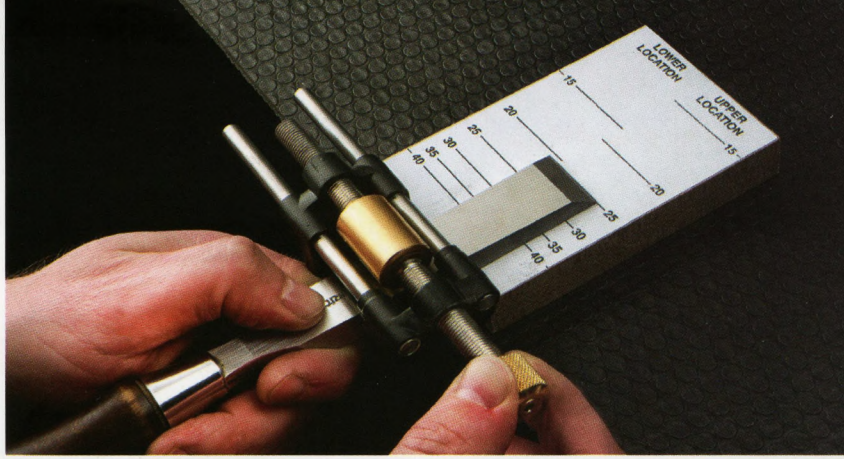
Its simplicity makes this the go-to guide for rapid and repeatable honing for most woodworkers' workflow. Paired with a shop-built registration jig, it will provide a flexible chisel and plane blade sharpening set-up for most workshops.

05M09.40 Side-Clamping Honing Guide

\$59.00



The Veritas Side-Clamping Honing Guide holds a broad range of blades, including bench plane blades up to 2 1/2" wide, chisels as narrow as 1/8" and odd-shaped blades such as shoulder and plow plane blades.



Setting the Blade Extension

To set the blade extension, butt the front edge of the honing guide against the edge of your user-made registration jig. Turn the clamp knob counterclockwise to open the jaws, then place the blade between the jaws, aligning the blade edge with the appropriate angle mark for the blade location being used. Tighten the clamp knob firmly (but avoid overtightening) and hone the blade.

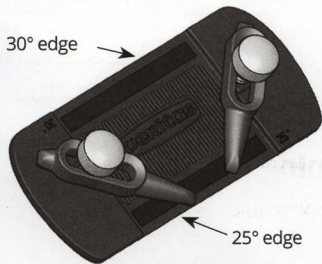
Veritas Short-Blade Honing Guide

A frequent challenge faced by sharpeners of all skill levels is the safe and accurate honing of small or short blades. Spokeshave, small block plane and palm plane blades are too small for most guides. Our short-blade honing guide has the flexibility to hold small blades that other honing guides cannot handle. Blades up to 25/8" wide are easily aligned with the included registration jig for 25° and 30°. The adjustable fingers on the guide hold blades of all shapes securely at the correct angle. While many of these blades are sharpened with just a primary bevel, the included shim makes it easy to add a micro-bevel.

05M09.30 Short-Blade Honing Guide

\$79.00

Two Primary Bevel Angles



The Veritas Short-Blade Honing Guide securely holds many shapes of short or small blades, including spokeshave and small plane blades, as well as most blades with non-parallel sides and skewed edges.





Mk.II standard honing guide

Mk.II narrow-blade honing guide

Angle registration jig

The Veritas Mk.II Honing Guide System

The Mk.II honing guide is our complete sharpening system. Combined with the many optional accessories, it solves most challenges faced when sharpening woodworking tools.

The Heart of the System – The Standard Guide

The Mk.II honing guide system is built around the versatile standard honing guide, which holds chisels as narrow as 1/2" and blades as wide as 27/8" and up to 15/32" thick. This guide sets bevel angles from 15° to 54° and a range of back bevels from 10° to 20°.

The angle registration jig slides onto the guide body, centering and squaring the blade with the guide. It features a three-position eccentric roller, allowing adjustment to hone micro-bevels quickly and accurately with only a turn of a knob.

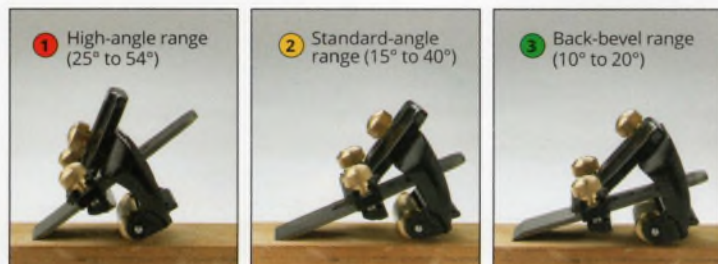
The standard honing guide includes the standard clamping head, straight roller base and angle registration jig. The deluxe honing guide set includes standard and narrow-blade clamping heads as well as an angle registration jig, a straight roller base and a camber roller base.

05M09.01 Standard Honing Guide

\$ 89.00

05M09.20 Deluxe Honing Guide Set

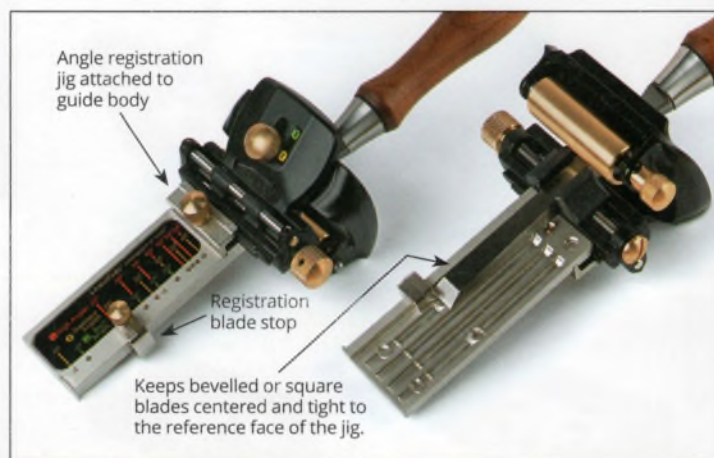
\$185.00



How Do I Set the Blade Protrusion on the Guide for the Correct Angle?

The key to using a guide to get consistent and repeatable results is to set the angle for the blade the the same way every time it is placed in the guide. The standard and narrow-blade heads both use the angle registration jig, which mounts to the head, to ensure the blade protrudes correctly for the desired angle and to ensure the blade is mounted squarely in the guide, both critical to achieving good results.

The angle registration jig has three scales; two support a wide variety of blade angles, and the third has options to create a back bevel on a blade. These correspond to a color-coded setting on the guide that is easily changed as necessary. Once the blade is installed, the jig slides off the guide for storage.



Most manufacturers ship blades with grinding marks on the back (or bottom) that, if not removed, would leave a series of fine saw teeth on the tool edge. To avoid these saw teeth, the back of the blade must be lapped flat.

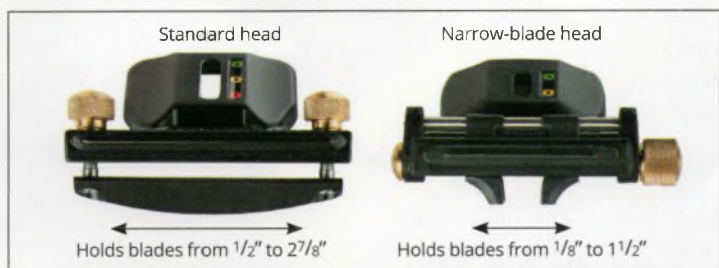
Veritas Honing Guides	Max. Blade Width	Min. Blade Width	Max. Thickness	Short Blades	Angle Range	Skews	Micro-Bevel	Angle Setting
Side-Clamping Honing Guide	2.5"	0.125"	0.45"		15° to 40°		✓	user-made jig
Short-Blade Honing Guide	2.65"	0.25"	0.375"	✓	25° and 30°	✓	✓	two positions
Mk.II Standard Honing Guide	2.89"	0.5"*	0.49"		15° to 54°	✓	✓	registration jig
Mk.II Deluxe Honing Guide	2.89"	0.125"	0.49" (0.7" w/adaptor)		15° to 54°	✓	✓	registration jig
Mk.II Narrow-Blade Honing Guide	1.5"	0.125"	0.49" (0.7" w/adaptor)		15° to 40°		✓	registration jig

* Can clamp much narrower blades, but they tend to skew in use.



Sharpening Chisels & Narrow Blades

The standard head for the standard honing guide holds blades up to 27/8" wide for honing. The narrow-blade honing guide was developed to hold blades from 1/8" to 11/2" wide. This self-centering guide clamps the blade securely and makes use of the same angle registration jig as the standard head to set the blade protrusion.



The narrow-blade option is available as a complete honing guide set-up, with straight roller base and angle registration jig. Alternatively, the narrow-blade clamping head can be purchased to swap with the standard clamping head on the standard honing guide.

05M09.10 Mk.II Narrow-Blade Honing Guide
05M09.09 Narrow-Blade Clamping Head only

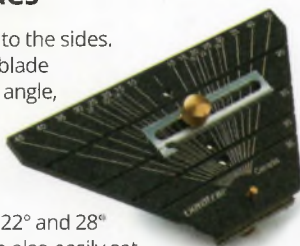
\$129.00
\$ 64.90

How to Sharpen Skewed Blades

Not all woodworking blades have edges at 90° to the sides. The standard honing guide will hold a skewed blade at the correct angle for honing. To establish this angle, the skew registration jig locks into the standard honing guide, replacing the angle registration jig, and makes quick work of setting left or right skews from 10° to 45° in increments of 5°, with additional marks for 18°, 22° and 28° for most skew plane blades. Custom angles are also easily set.

05M09.03 Skew Registration Jig

\$44.50



Mortise Chisel Sharpening

Mortise chisels present their own challenge for sharpening, as they are usually thicker to provide the strength they need to chop out mortises. The mortise chisel adapter for the narrow-blade honing guide provides enough clearance for these heavy blades up to 11/16" thick. The adapter comes with a longer brass bolt and spacer, which installs in seconds on the narrow-blade honing guide. Using the angle registration jig will yield a proper angle in the 30° to 35° range typical for most mortise chisels.

05M09.12 Mortise Chisel Adapter

\$14.90



Should I Camber My Plane Blades?

When planing material wider than the plane blade, such as a tabletop, the sharp corners of the blade can leave scratches. To prevent that, the corner of the blade can be rounded slightly, creating a cambered blade. Many woodworkers camber the blades in their smoother and jack planes.

The simplest technique to camber the blade is to make a few extra passes during the honing phase on the finest stone, pressing first on one side for a few passes and then on the other side for a few passes. This will camber a blade enough for most smoothing.

To achieve more consistent results or to create a more aggressive camber, such as for a scrub plane, the Veritas Camber Roller Assembly fits the bill. Replace the straight roller assembly by loosening the brass nut and sliding on the camber roller. The camber roller also has the eccentric roller setting, allowing it to be used for primary and micro-bevels.

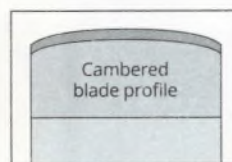
05M09.05 Camber Roller Assembly

\$36.50



Straight roller

Camber roller



Camber roller assembly



Shapton Stones



This extensive range of equipment is designed to sharpen a wide variety of edge tools – from chisels and plane blades to razors, knives and even swords. The large selection of grits in each product range ensures that you will be able to select a set of two to four grits that will afford optimal performance for a given steel, application or workflow. Shapton stones are dense and durable and require only a quick spray of water before use. They cut quickly and produce consistent results.

The **Ha-No-Kuromaku** stones are traditional single-grit solid stones with a magnesia binder base, but not heat fused as other ceramic stones are. They are large enough to handle most woodworking chisels and plane blades. The supplied case also serves as a stand. This range will best suit most users.

The innovative **GlassStone** series stones have the same usable area as the Kuromaku stones. Though thinner in section, the entire ceramic abrasive of the stone can be used, as the glass substrate ensures structural integrity is maintained as the stone wears. These stones are meant for users of more modern steels, such as steels that use powdered metallurgy or have high chromium or vanadium content. This series is for keen sharpeners who want the consistency of a range with its own lapping system and solid stone holders.

The **GlassStone Seven** series has a smaller footprint than the regular GlassStones series, making it better suited to free-hand honing the longer edges typical of household tools such as knives or shears, or smaller edge tools like carving or turning tools. It too has a dedicated lapping plate and holder.

The new **RockStar** line of stones features the same premium abrasive media range as the GlassStone in a more economical offering. These stones are thicker without the glass and will last much longer.

Grit Chart – Showing Shapton Stones

Sharpening Stage	Grit Range (μ)	Micron (μ)	Kuromaku	GlassStone	RockStar	GlassStone 7	Range Code
Shaping 30.1–150	30.1–150	122.50	120	120			1
		66.82	220	220			
		45.94	320	320			
		40.00			320		
Grinding 10.1–30	20.1–30	29.40		500			2A
		25.00			500	25.0μ	
	15.1–20	20.00					2B
		14.70	1000	1000			
		11.50				11.5μ	2C
		11.00			1000		
Honing 3.01–10	8.01–10	9.80	1500				3A
		7.35	2000	2000			
	6.01–8	6.70				6.70μ	3B
		6.00			2000		
	3.01–6	4.90		3000			
		4.00			3000	4.00μ	3C
		3.68		4000			
Polishing 0.25–3	1.51–3	3.00			4000	3.00μ	4A
		2.94	5000				
		2.45		6000			
		2.00			6000	2.00μ	
		1.84	8000	8000			
	0.76–1.5	1.47		10000	1000		4B
		1.20				1.20μ	
		1.00	12000		8000		
		0.92		16000	16000		
		0.85				0.85μ	
	0.25–0.75	0.49	30000	30000			4C
		0.44				0.44μ	

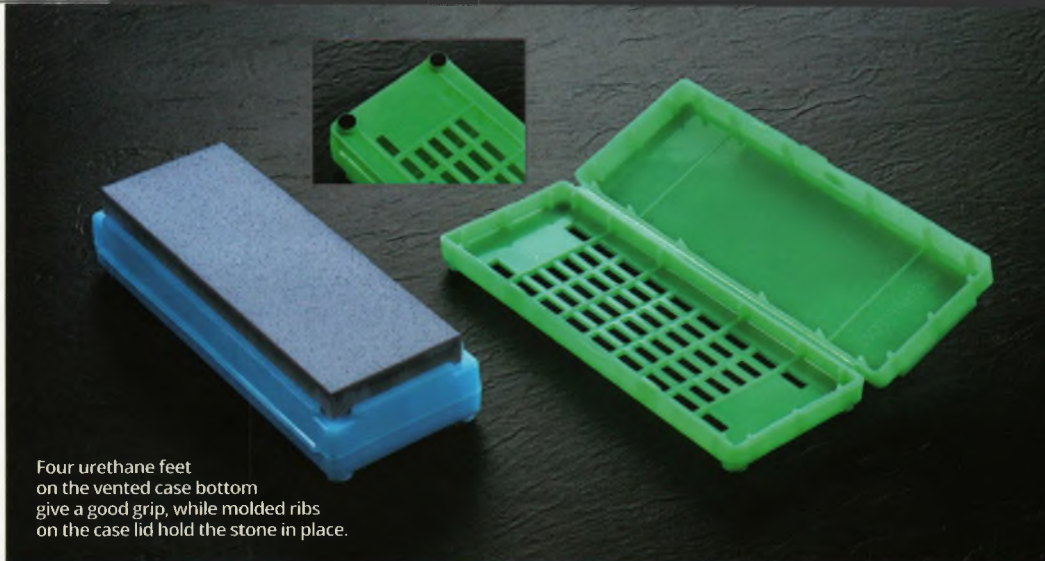
Ha-No-Kuromaku Ceramic Stones

These stones are the workhorses of many woodshops. Precisely graded sharpening media are bonded to create a stone that is durable yet fast cutting. Each of the 10 color-coded single-grit solid stones in the series measures 210mm×70mm×15mm (8 1/4"×2 3/4"×5/8") and is supplied in a color-matched live-hinge plastic storage case that also serves as a stand. Four urethane feet on the vented case bottom give a good grip, while molded ribs on the case lid hold the stone in place. Both sides of the stone are usable.

Most applications require the use of two to four stones, selected to suit the application or type of steel being sharpened. Ideally you would use a selection of stones that would entail spending an equal amount of time sharpening with each. The orange 1000x stone used with the wine 5000x stone is commonly recommended to start. Another good option is the blue 1500x or the green 2000x in combination with the melon 8000x, especially if eventually using the purple 30,000x stone is a possibility. (Shapton recommends using the melon 8000x stone immediately before using the purple 30,000x as the best interval in grit difference.) Shapton grades Kuromaku stones by their effective finish; we have inferred the equivalent micron size in the chart on the facing page.

All Kuromaku stones can be used with the Shapton stone holder, field holder and pond. They can also be used as oil stones, but then must continue to be used with oil only. Each stone weighs just shy of 20 oz (550g).

A. 61M01.01	1	White Stone 120x	\$ 59.50
B. 61M01.02	1	Moss Stone 220x	\$ 59.50
C. 61M01.03	1	Blue-Black Stone 320x	\$ 59.50
D. 61M01.04	2C	Orange Stone 1000x	\$ 61.50
E. 61M01.05	3A	Blue Stone 1500x	\$ 69.50
F. 61M01.06	3B	Green Stone 2000x	\$ 72.50
G. 61M01.07	4A	Wine Stone 5000x	\$ 92.50
H. 61M01.08	4A	Melon Stone 8000x	\$109.00
J. 61M01.09	4B	Yellow Stone 12,000x	\$109.00
K. 61M01.10	4C	Purple Stone 30,000x	\$499.00



Four urethane feet on the vented case bottom give a good grip, while molded ribs on the case lid hold the stone in place.

GlassStone Series (GS)

This innovative design uses tempered float glass as a foundation for each stone, giving it a degree of dimensional stability and strength while ensuring that all the abrasive is usable. Overall stone dimensions are 210mm×70mm×11mm (8 1/4"×2 3/4"×7/16") with 5mm of usable abrasive thickness. Each stone weighs about 14 oz (400g). Use with the Shapton stone holder or field holder for a solid base that holds the stone at a good working height.

The GS series has the largest range of grits (13 grits) and will appeal to technical sharpeners who can build a sharpening regimen that meets the needs of any blade. The HR stones are the regular stones; for forge-welded composite steel blades, Shapton recommends the HC-designated 4000x, 6000x and 8000x stones that use a different abrasive agent best suited for those blades.

L. 61M03.01	1	HR Stone 122.50μ 120x	\$ 59.50
M. 61M03.02	1	HR Stone 66.82μ 220x	\$ 59.50
N. 61M03.03	1	HR Stone 45.94μ 320x	\$ 59.50
O. 61M03.04	2A	HR Stone 29.40μ 500x	\$ 67.50
P. 61M03.14	2A	10mm HR Stone 29.40μ 500x	\$ 99.00

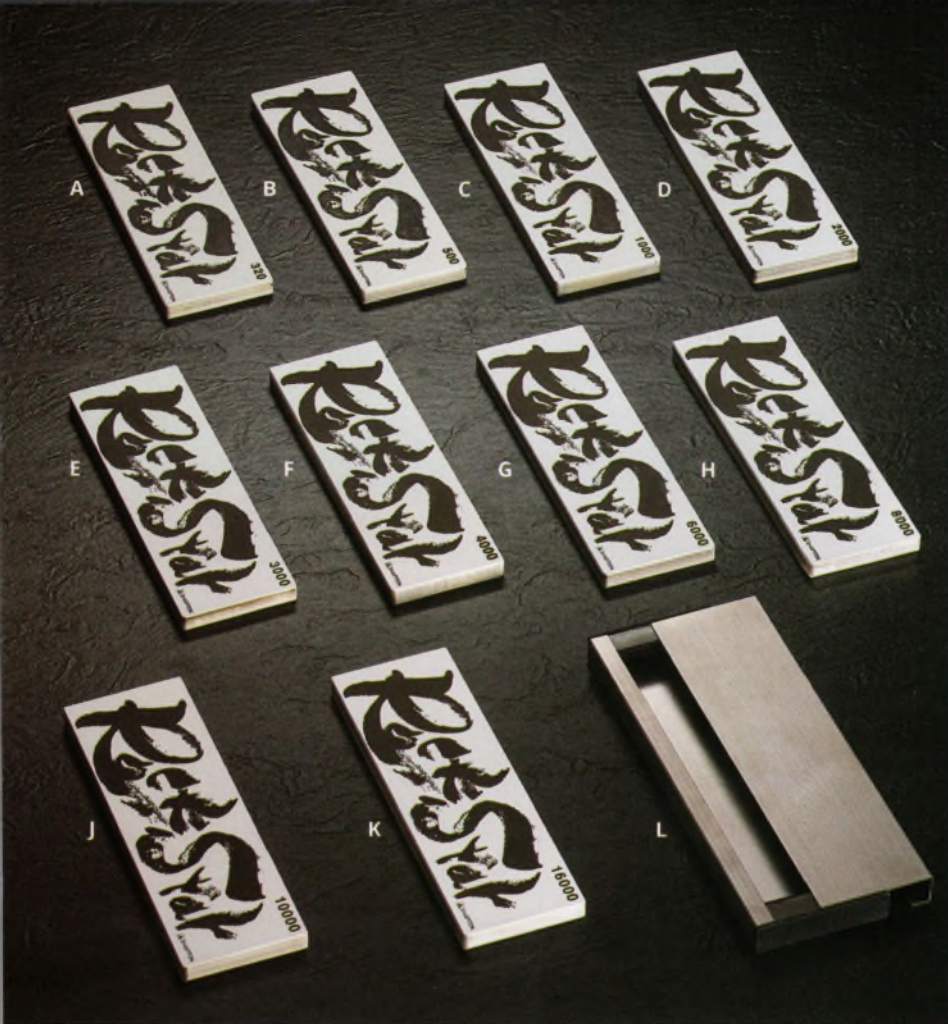
Q. 61M03.05	2C	HR Stone 14.7μ 1000x	\$ 73.50
R. 61M03.06	3B	HR Stone 7.35μ 2000x	\$ 79.00
S. 61M03.07	3C	HR Stone 4.90μ 3000x	\$ 89.00
T. 61M03.08	3C	HR Stone 3.68μ 4000x	\$ 89.00
U. 61M03.09	4A	HR Stone 2.45μ 6000x	\$ 99.00
V. 61M03.10	4A	HR Stone 1.84μ 8000x	\$126.00
W. 61M03.11	4B	HR Stone 1.47μ 10,000x	\$174.50
X. 61M03.12	4B	HR Stone 0.92μ 16,000x	\$159.00
Y. 61M03.13	4C	HR Stone 0.49μ 30,000x	\$349.00
Z. 61M03.28	3C	HC Stone 3.68μ 4000x	\$ 89.00
AA. 61M03.29	4A	HC Stone 2.45μ 6000x	\$ 99.00
BB. 61M03.30	4A	HC Stone 1.84μ 8000x	\$119.00



The 10mm HR stone 29.40μ 500x is twice the thickness of the HR stone 29.40μ 500x.



The field holder provides a secure foundation for Shapton stones.



Rockstar Stones

RockStar stones are made with twice the thickness of the same fused alumina grades as the GlassStone series, but without the glass plate substrate. Each stone measures 210mm x 70mm x 10mm (8 1/4" x 2 3/4" x 25/64") and is usable on both sides.

The high-quality stainless-steel case has a rubber end cap to protect the cased stones from corner impacts and is held in place with rare earth magnets.

Case dimensions are 236mm x 76mm x 19mm (about 9 5/16" x 3" x 3/4").

Available in 10 grits from 320X to 16000X, and sold with or without the stainless-steel protective storage case. Stones are compatible with the Shapton GlassStone holder.



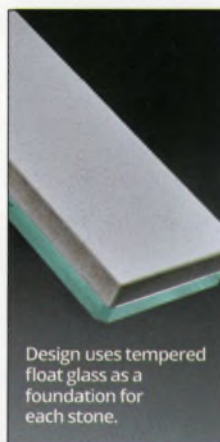
		Stone Only		Stone with Case	
A.	1 RockStar 320x	61M05.01	\$ 52.00	61M05.21	\$ 82.00
B.	2A RockStar 500x	61M05.02	\$ 52.00	61M05.22	\$ 82.00
C.	2C RockStar 1000x	61M05.03	\$ 52.00	61M05.23	\$ 82.00
D.	3B RockStar 2000x	61M05.04	\$ 62.00	61M05.24	\$ 92.00
E.	3C RockStar 3000x	61M05.05	\$ 69.00	61M05.25	\$ 99.00
F.	3C RockStar 4000x	61M05.06	\$ 69.00	61M05.26	\$ 99.00
G.	4A RockStar 6000x	61M05.07	\$ 79.00	61M05.27	\$ 109.00
H.	4A RockStar 8000x	61M05.08	\$ 99.00	61M05.28	\$ 129.00
J.	4B RockStar 10000x	61M05.09	\$ 139.00	61M05.29	\$ 169.00
K.	4B RockStar 16000x	61M05.10	\$ 129.00	61M05.30	\$ 159.00
L.	Stainless-Steel Case	61M05.00	\$ 34.50		

GlassStone Seven Series (GS7)

GS7 Stones

The smaller format of this series makes it ideal for freehand honing of the longer edges found in most households (knives, shears, scissors) or smaller edge tools such as carving or turning tools. The stones are 160mm x 37mm (6 5/16" x 1 7/16"), weigh about 180g (6.4 oz) each and are 12mm thick, about 7mm of which is usable abrasive.

M.	61M02.01	2A	GS7 Stone 25.0μ	\$ 42.50
N.	61M02.02	2C	GS7 Stone 11.5μ	\$ 53.50
O.	61M02.03	3B	GS7 Stone 6.70μ	\$ 64.50
P.	61M02.04	3C	GS7 Stone 4.00μ	\$ 64.50
Q.	61M02.05	4A	GS7 Stone 3.00μ	\$ 64.50
R.	61M02.06	4A	GS7 Stone 2.00μ	\$ 73.50
S.	61M02.07	4B	GS7 Stone 1.20μ	\$ 89.50
T.	61M02.08	4B	GS7 Stone 0.85μ	\$ 135.00
U.	61M02.09	4C	GS7 Stone 0.44μ	\$ 119.00



V. GS7 Knife Sharpening Kit

This kit is an excellent starting point for anyone interested in the GS7 system. It includes all the most expensive components at a 30% discount from the individual prices. The kit includes the GS7 holder, the GS7 lapping plate, and three stones (25.0μ – coarsest, 6.70μ, 0.44μ – finest), all in a two-tray presentation/storage box.

61M02.20 2A 3B 4C GS7 Knife Sharpening Kit **\$399.00**



Stone Holders & Pond

A. Stone Holder

This is a substantial holder, weighing in at a hefty 4.3 lb (1.95kg). With a body constructed of eight laminated layers of tempered float glass with a molded SBR (styrene-butadiene rubber) casing, it not only holds Kuromaku and GS stones securely, but its mass ensures it will not budge in use. The holder elevates the stone to a comfortable working height, allowing clearance for working on handled tools while supporting the stone at both ends as well as in the center. An excellent foundation for Shapton stone use in the workshop.

61M01.50 Stone Holder

\$89.00

B. Field Holder

A less hefty alternative to the regular holder, the field holder weighs 1.43 lb (650g). When it is turned upside down, three glass stones can be stacked between the feet, convenient for storage or transport. In use, it holds Kuromaku or GS stones to give a working surface height of 2³/₈" (60mm).

61M01.60 Field Holder

\$69.00

C. Pond

Constructed using two layers of tempered float glass with a frosted finish and an over-molded SBR frame that creates a 7/8" recess on both sides, this pond is a stable platform for Shapton stones and holders. Measuring 15³/₈"x12¹/₂" (390mmx320mm), it has a total height of 2¹/₈" (52mm). The rubber frame seats securely, contains any water and swarf overflow, rinses easily, and makes moving your entire set-up a snap. It will hold three stones at once, but is best used with one or two to allow hand clearance.

61M01.90 Pond

\$259.00

Styrene-butadiene rubber (SBR) is a high-tensile-strength, abrasion-resistant man-made rubber. It generally ages better than natural rubber and has a wide variety of uses, from conveyor belts and tires to shoe soles and carpet backing.



D. GS7 Holder

The GS7 holder consists of an 8.35"x2.83" (212mmx72mm) base that supports a stack of layered float glass. SBR jaws hold the stones in place against the stack, while rubber feet at each corner of the base keep the holder from moving. The resulting height of the stone surface is 1.85" (47mm) above the work surface – a comfortable clearance height for lapping handled edge tools.

61M02.30 GS7 Holder

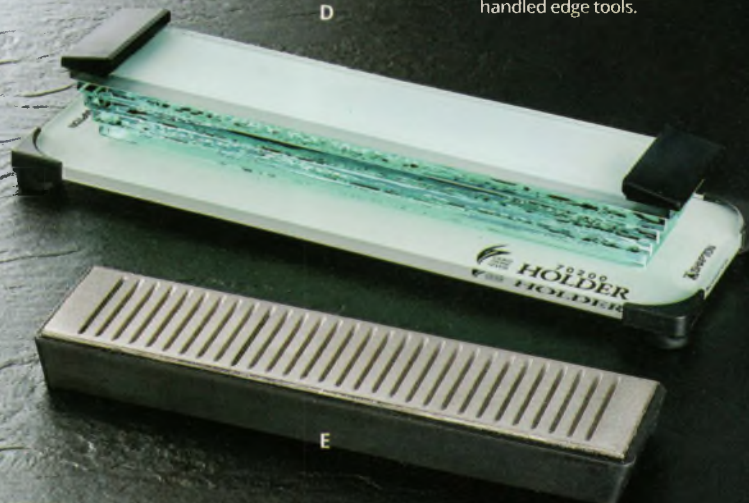
\$120.00

E. GS7 Diamond Lapping Plate

This dedicated GS7 lapping plate is used to dress each of the GS7 stones. It is 165mmx41mmx16mm (6¹/₂"x1⁵/₈"x5/8") and weighs 170g (6 oz). With a float-glass substrate, it has diamond grit in the 45μ to 54μ range, making it suitable for use with all the stones in the GS7 series.

61M02.10 GS7 Lapping Plate

\$229.00



GS7 holder has a comfortable clearance height for lapping handled edge tools.





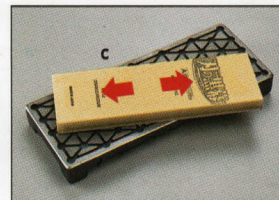
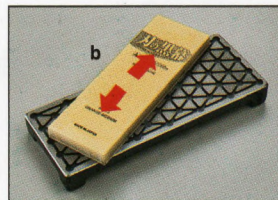
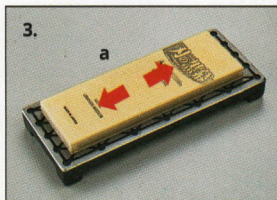
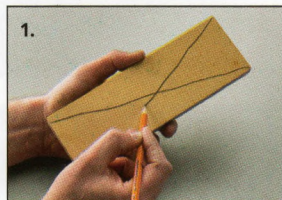
Lapping

E. Standard Lapping Plate (NAORU)

This is a substantial lapping plate, weighing in at 2.6kg (about 5³/₄ lb) with cast geometric grooves and a milled surface. Intended for use with Shapton lapping powders, it is supplied with bottles of coarse and medium powders (fine is available separately). Lapping instructions included.

61M04.10 Standard Lapping Plate

\$239.00



1. Use a pencil to draw an X on the stone surface to be flattened. 2. Sprinkle a little powder onto three or four places on the plate, then rub it gently with a stone using a circular motion so the powder gets distributed evenly across the plate. 3. Place the uneven surface of the stone requiring lapping onto the plate and slide it backwards and forwards (a), then diagonally backwards and forwards (b and c).

Lapping Powders

Supplied in dispenser bottles, there are three lapping grits: coarse (80x), medium (180x) and fine (4000x). Shapton recommends coarse powder for stones with grit greater than 40 μ , and medium for stones with grits between 4 μ and 40 μ . Fine powder is used for stones 4 μ or smaller. About 120ml (4 oz) of grit in each bottle.

A. 61M04.01 Coarse Powder, 120ml (4 oz)

\$24.50

B. 61M04.02 Medium Powder, 120ml (4 oz)

\$24.50

C. 61M04.03 Fine Powder, 120ml (4 oz)

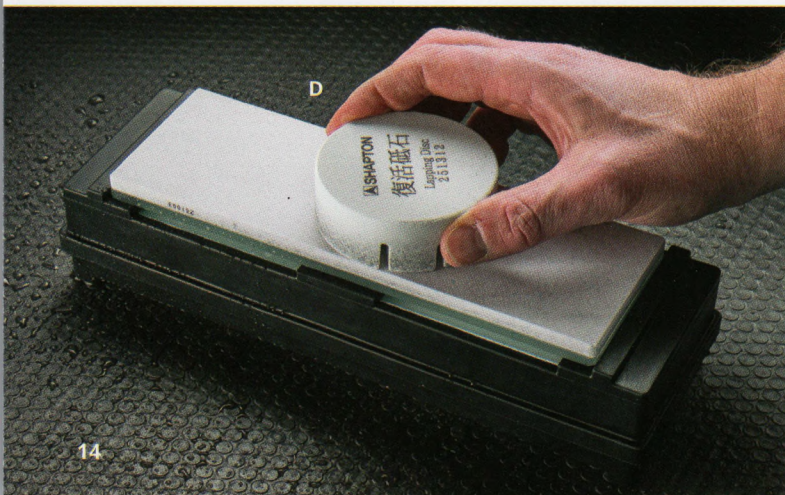
\$39.50

D. Lapping Disc

Used wet, the lapping disc dresses a stone face to recondition the surface. Used with light pressure in a circular motion over the entire stone face, it will remove only a small amount of abrasive. It is grooved on one side and flat on the other; both sides are usable, with the grooved side giving a slightly finer finish. The disc is 70mm (2³/₄") in diameter and 24mm (just shy of 1") thick. It is recommended for use on stones up to 2000x.

61M04.15 Lapping Disc

\$26.50

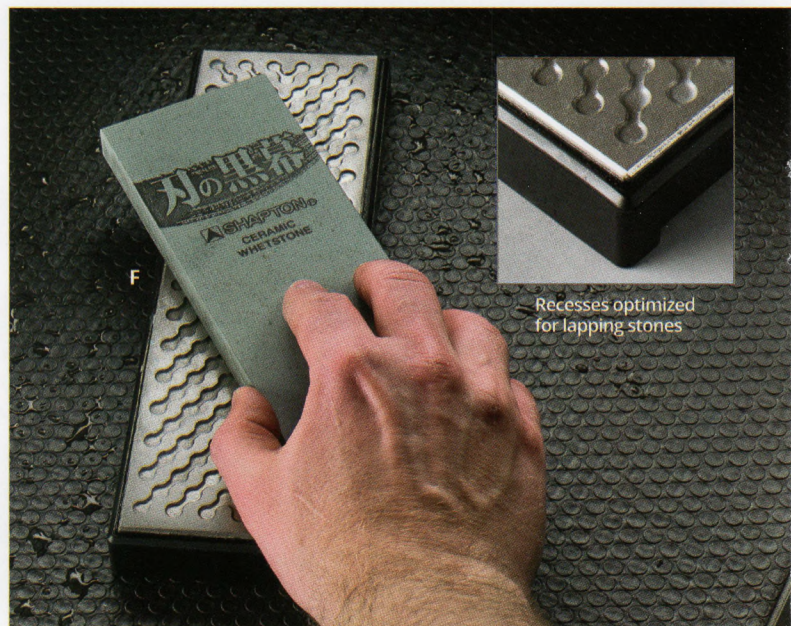


F. Diamond Glass Lapping Plate (DGLP)

The DGLP uses float glass as a substrate and has recesses optimized for lapping stones, ensuring that swarf is carried away from the working surface while preventing hydraulic lock during use. Diamond grit size is in the 45 μ to 54 μ range, making the DGLP suitable for use only with stones finer than 30 μ (0.4 μ to 30 μ range). It has a working surface 254mm $\times$ 72mm (10" $\times$ 2¹³/₁₆") and weighs about 750g (26.5 oz). With an over-molded rubber frame, it can be used on the stone and field holder or on its own.

61M03.99 Diamond Glass Lapping Plate

\$389.00



Recesses optimized for lapping stones

Making a Sharpening Media Choice



So Many Options

Each sharpening medium has its advantages and weaknesses. Choosing the most suitable option depends on your sharpening workflow, with factors such as space, portability, water access, freezing or humidity to consider.

Shapton Stones: pages 10 to 14

Representing the finest in Japanese sharpening stones, Shapton makes four ranges of solid and glass-mounted premium stones, available in grits up to 30,000x for the perfect razor edge.

Water Stones: pages 16 to 17

Water stones today are mainly man-made bricks of abrasive held together with resin or adhesive. Water stones tend to wear faster than harder stones, exposing fresh abrasive constantly during use and allowing faster sharpening.

Ceramic Stones: page 18

Ceramic sharpening stones are similar to water stones, but have been manufactured by heat fusing grit with a binder like magnesia (magnesium oxide). Ceramic stones tend to be slower-wearing than water stones, and many require only wetting (not soaking) before use. Ceramic stones are often available in finer grits than water stones (up to 30,000x).

Oil Stones: page 19

Oil stones are the traditional choice for woodworkers. Oil stones are slow-wearing and use oil as a lubricant, making them ideal for outdoor applications and storage where freezing could damage a saturated water stone. Historically, these were natural stones in finer grits cut from a quarry and flattened. Today, most oil stones are man-made stones manufactured from the traditional abrasive material harvested from those same quarries.

Diamond Stones: pages 20 to 21

Diamond stones are not stones in the traditional sense, but are made from carefully graded monocrystalline diamond particles fused to a plastic or metal substrate. Available in grits from very coarse (120x) to extra fine (8000x), diamond stones provide a durable and simple alternative for many types of sharpening. The diamonds can be fused to either a very flat ($\pm 0.001''$) metal plate or to a composite plastic/metal plate, which is flat enough for many uses ($\pm 0.005''$). A coarse ($\sim 400x$) diamond plate makes an excellent flattening plate for water or ceramic stones as well as a coarse grinding option for shaping the primary bevel on a blade. Diamond stones can be used with or without a lubricant (water or a thin oil both work well), making diamond stones a flexible alternative for many.

Film, Paste, Compound & Paper: pages 22 to 23

Many types of abrasive media are available in film or paper form, as well as paste or stick form in the case of honing compound. These provide a flexible sharpening option that can be easily adapted to the woodworker's needs.

Water Stones



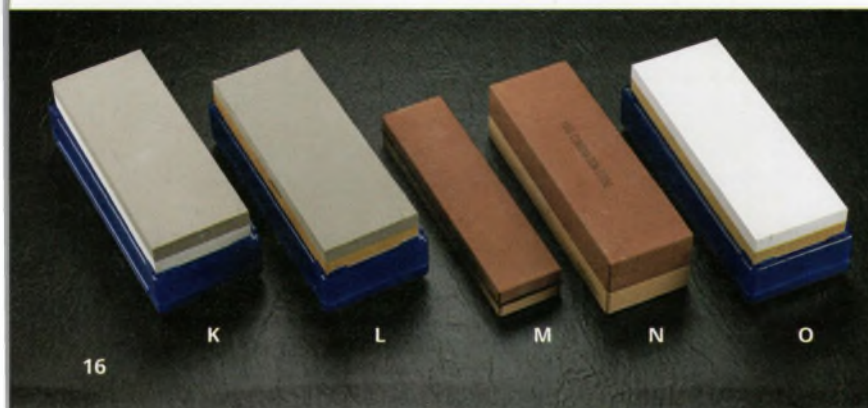
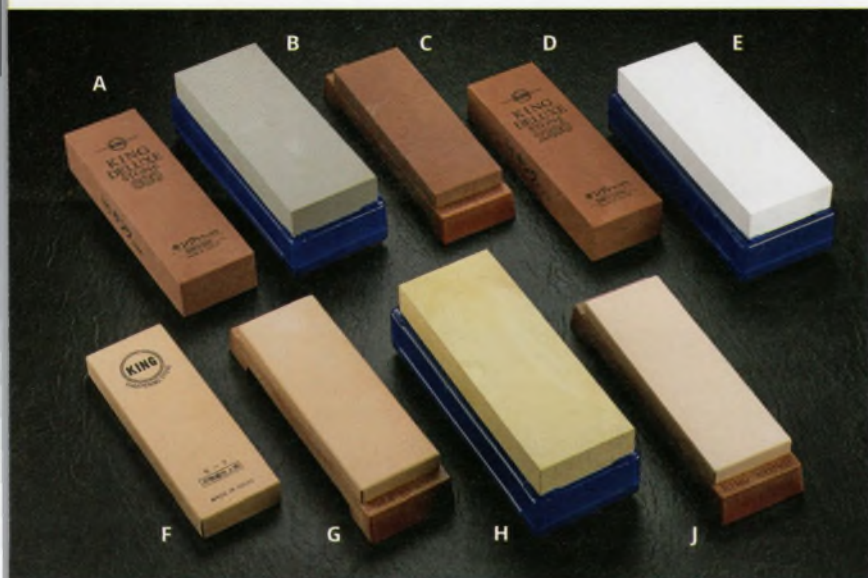
What Are Water Stones?

Water stones are man-made bricks of sharpening media, usually silicon carbide or aluminum oxide, which are held together with a binder, often a resin. Water stones are characterized as being very friable, meaning they release abrasive quickly, often sharpening faster than other types of media. Due to this friability, water stones tend to wear faster than other man-made stones and require flattening more frequently.

Water stones make an economical sharpening choice and are available from coarse 200x to fine 8000x, which meets the needs for many woodworkers looking to achieve a fine edge on their tools.

All water stones require some amount of soaking in water before being used. The stone has soaked long enough when water remains on the surface when it is removed from the water. It is good practice to spritz the surface of the stone during sharpening to keep it from drying out and clogging with metal filings. Stones should be wiped off after use and should not be left immersed in water for extended periods to avoid growing nasty organics.

King and Norton both offer high-quality aluminum-oxide-based stones, with the Norton stones abrading most metals faster than King stones.



Basic Water Stone Set-Up

Every woodworker's sharpening requirements and workflow are unique. When starting out, you may struggle to figure out which of the many media and grit options to buy. Water stones are a reasonable place to start.

The most commonly used stone is the 1000x, for shaping the bevel and initial grinding of the bevel before final honing. A 4000x stone is one step finer and is often the choice for final honing of thinner blades, such as knives, and also as an intermediate step before final polishing on extra-fine grits. Typically, the finest water stone grit of 8000x is for polishing or honing the cutting edge. This is the grit most commonly used as the final step for regular woodworking tools such as chisels and plane irons.

Combination water stones provide an excellent value of two stones in one. The 1000x/8000x stone will cover the needs of woodworkers who are looking to both shape the bevel and hone the edge.

A. 60M01.01	2B 800x King	8"×2 1/2"×1 3/8"	\$ 45.50
B. 08M15.03	2C 1000x Norton	7 7/8"×2 7/8"×1"	\$102.00
C. 60M40.01	2B 1000x King	7"×2 1/2"×5/8"	\$ 42.50
D. 60M02.01	2C 1200x King	8"×2 1/2"×1 3/8"	\$ 48.50
E. 08M15.05	3C 4000x Norton	7 7/8"×2 7/8"×1"	\$138.00
F. 60M03.03	3C 4000x King	7"×2 1/2"×3/4"	\$ 44.50
G. 60M03.01	3C 4000x King	7"×2 1/2"×1 1/2"	\$ 49.50
H. 08M15.07	4A 8000x Norton	7 7/8"×2 7/8"×1"	\$205.00
J. 60M10.01	4A 8000x King Gold	7"×2 1/2"×1 1/2"	\$ 89.00
K. 08M15.23	2C 3C 1000x/4000x Norton	7 7/8"×2 7/8"×1"	\$136.00
L. 08M15.27	2C 4A 1000x/8000x Norton	7 7/8"×2 7/8"×1"	\$162.00
M. 60M50.04	2B 3C 1000x/4000x King Std.	8"×2"×1"	\$ 56.50
N. 60M50.05	2B 3C 1000x/4000x King Lg.	8 1/4"×2 3/4"×2"	\$109.50
O. 08M15.25	3C 4A 4000x/8000x Norton	7 7/8"×2 7/8"×1"	\$189.00

A 1000x/4000x combination water stone makes a great choice for kitchen knives. The 1000x will prepare a badly dulled blade for honing, while the 4000x gives just the right tooth to Western-style kitchen knives to allow them to cut well.



The stone pond by Veritas



Flattening Water Stones

Water stones are known for the way they abrade, constantly providing fresh abrasive to the edge being sharpened. As a result, water stones wear down quickly, and even though the entire stone may be used for sharpening, the stone will develop some concave areas on the surface during use. It is important that this surface be flattened routinely to remain at peak performance. Some woodworkers rub a pair of water stones together to keep them flat, but this can produce inconsistent results (one can become concave, the other convex), as well as embed another size of abrasive in the surface of the stone, contaminating it and perhaps causing the blade to be scratched by embedded coarser grit at a later stage of sharpening.

Every shop should have a dedicated method for flattening water stones, and a few options exist. Using a truing stone, which has a coarse grit and grooves to carry away the stone particles, is an easy and inexpensive choice. A coarse diamond plate (400x) is another practical option, as it can also be used for shaping the primary bevel.

Regardless of the method used to flatten the stone, the process is the same. Use a pencil to mark a pattern on the stone and flatten the stone until the pencil marks disappear. Many woodworkers flatten at the end of every sharpening session, so the stone is ready to use next time it is required.

- | | | | |
|-------------|--------------------------------------|------------------|----------|
| A. 60K82.32 | 1 Atoma 400x Diamond Plate | 8 1/4"x3"x25/64" | \$129.00 |
| B. 70M41.00 | 1 Pride Silicon Carbide Truing Stone | 9"x3"x3/4" | \$42.50 |
| C. 08M15.30 | 1 Silicon Carbide Truing Stone | 9"x3"x3/4" | \$59.90 |

Water Stone Accessories

The Stone Pond by Veritas is a complete system to store, use and maintain water stones up to 12" long. Stones can be stored, ready for use, in a stand that also clamps them and provides a base for lapping. The twin-clamping system holds coarse and fine stones at the same time, and the quick-acting cam clamps are fully adjustable. There is ample space for three or more bench stones and lapping supplies to keep your water stones flat.

05M20.06 The Stone Pond \$85.00

No-Rust Water Additive is a concentrated additive that prevents the oxygen in the water from bonding with iron. It is easy to use and causes no harm to the adhesive in water stones.

56Z80.88 No-Rust Additive, 250ml (8.5 fl oz) \$46.50

The **Water Stone Holder** adjusts to fit most stones and provides a secure, slip-free base for any stones that are not mounted on their own base.

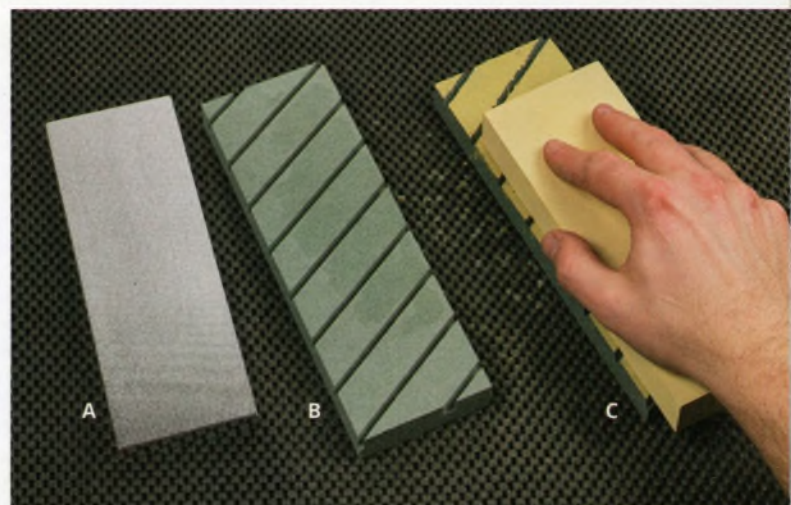
60N01.01 Water Stone Holder \$34.90



Do I Need to Soak My Water Stones?

To test if a stone requires soaking, spray some water on it; if the water disappears quickly, the stone should be soaked. Immerse it in water, and when the bubbles stop and water stays on the stone surface when it's removed, the stone is ready for use.

It is not normally recommended to store stones in water for extended periods. Clean and dry the stones if they will not be used for a few days.

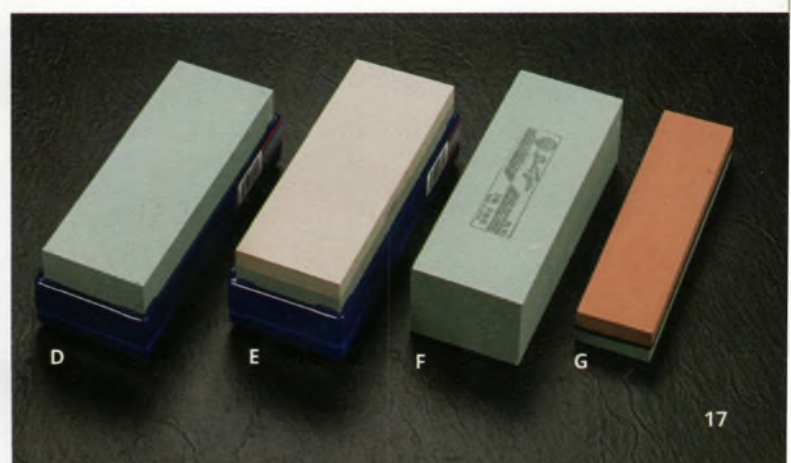


Water Stones for Shaping the Bevel

Water stones cut rapidly at all grit levels; however, the grits used for grinding a primary bevel are particularly aggressive. Very coarse water stones in the 200x to 300x range remove metal quickly and leave deeper scratches than a finer stone. Since this is usually the primary bevel being shaped and not the actual micro-bevel cutting edge, this is more of an aesthetic concern, but many woodworkers clean up the primary bevel on a fine stone before honing the edge.

Finer-grit water stones such as 800x to 1000x take longer to shape a bevel but leave fewer scratches. Most woodworkers already include a 1000x stone in their workflow for edge preparation, so adding a very coarse grinding stone is a great idea to speed up grinding when shaping the primary bevel or for grinding away blade damage or a nick in the blade.

- | | | | |
|-------------|-----------------------------------|------------------|---------|
| D. 08M15.01 | 1 220x Norton Aluminum Oxide | 7 7/8"x2 7/8"x1" | \$59.50 |
| E. 08M15.21 | 1 220x/1000x Combo Norton | 7 7/8"x2 7/8"x1" | \$89.00 |
| F. 60M60.01 | 1 200x King Green Silicon Carbide | 8"x3 1/8"x2 1/8" | \$84.50 |
| G. 60M50.03 | 1 250x/1000x Combo King | 8"x2"x1" | \$46.50 |



Ceramic Stones



What Are Ceramic Water Stones?

Ceramic stones use water as a lubricant, much the same as regular water stones, but they are usually characterized as harder and slower-wearing. Ceramic stones are man-made bricks of adhesive manufactured using processes such as sintering and pressure to make a very hard stone. Where water stones require soaking before use, most of the finer-grit ceramic stones require only a spray of water to work effectively.

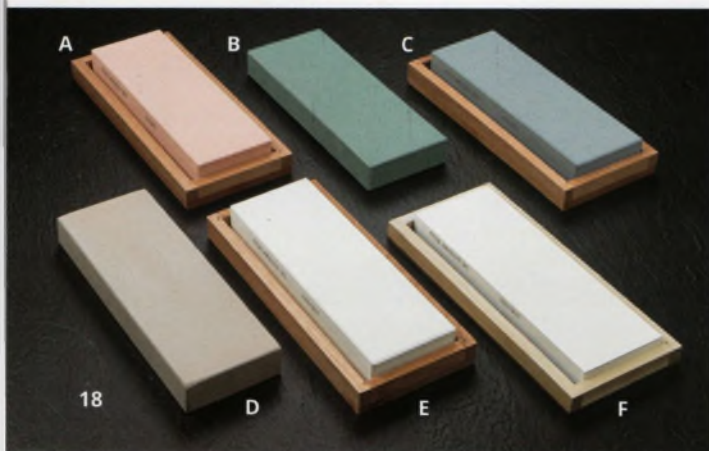
The Bester, Imanishi, Sigma Power Select II and Pride Abrasive stones are some of the finest ceramic water stones made. They all provide a high-quality edge. The Sigma Power Select II and Pride Abrasive stones cut a little faster, while the Bester and Imanishi stones wear a bit more slowly. The Pride Abrasive stones require soaking before use.

Due to how ceramic stones are made, they are available in much finer grits than water stones, with the Sigma 13,000x providing a razor edge.

Grinding & Shaping Stones

Ceramic water stones are slow-wearing but aggressive when grinding to shape a bevel or reshape the bevel after grinding on a coarser stone or wheel to remove a nick. The Pride 220x and the Sigma 240x quickly remove material for grinding the blade, while the Bester 700x and the Pride 600x or 1000x shape the bevel and remove the scratches after grinding on a coarse stone or diamond plate.

- | | | | | |
|-------------|-------|-------------------|---------------|---------|
| A. 70M41.01 | 1 | 220x Pride | 8"x23/4"x1" | \$67.00 |
| B. 60K82.00 | 1 | 240x Sigma | 8"x3"x1" | \$89.00 |
| C. 70M41.03 | 2A | 600x Pride | 8"x23/4"x1" | \$70.00 |
| D. 60K80.70 | 2B | 700x Bester | 8"x215/16"x1" | \$74.50 |
| E. 70M41.05 | 2C | 1000x Pride | 8"x23/4"x1" | \$79.50 |
| F. 70M41.23 | 2C 4A | 1000x/6000x Pride | 8"x23/4"x1" | \$99.50 |



Honing & Polishing Stones

Once the primary bevel has been established, it's time to hone and polish the cutting edge. The most popular ceramic stone is the 1000x stone. It is coarse enough for light shaping of the bevel without leaving deep scratches and the first stone in most honing processes.

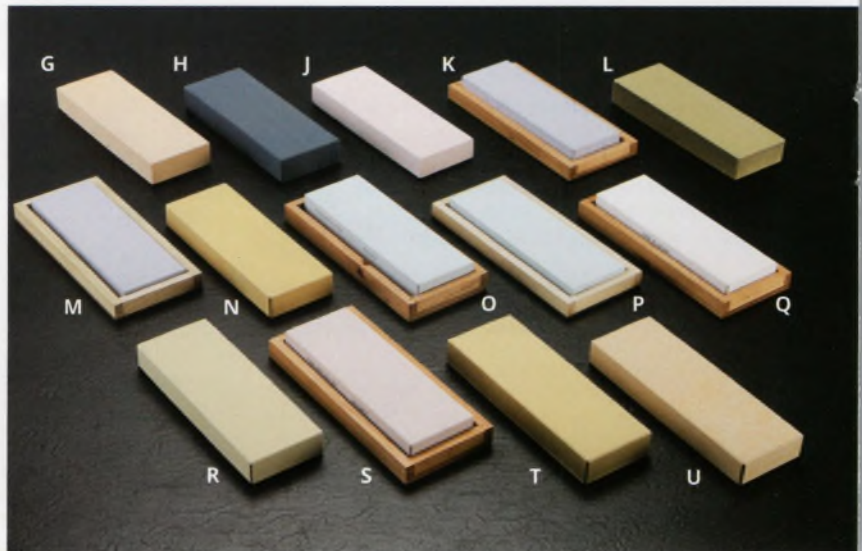
Cutlery or softer steel tools can be finished on stones in the 2000x to 4000x range, while most tool steels should be finished on at least an 8000x stone. The 10,000x and 13,000x are a good choice for polishing the micro-bevel and will yield an edge that is very sharp yet still durable enough for regular woodworking.

- | | | | | |
|-------------|-------|---------------------|---------------|----------|
| G. 60K81.01 | 2C | 1000x Bester | 8"x215/16"x1" | \$ 82.50 |
| H. 60K82.01 | 2C | 1000x Sigma | 8"x3"x11/8" | \$109.00 |
| J. 60K81.02 | 3B | 2000x Bester | 8"x215/16"x1" | \$109.00 |
| K. 70M41.06 | 3C | 3000x Pride | 8"x23/4"x1" | \$ 95.00 |
| L. 60K82.03 | 3B | 3000x Sigma | 8"x3"x11/8" | \$125.00 |
| M. 70M41.25 | 3C 4A | 3000x/8000x Pride | 8"x23/4"x1" | \$119.00 |
| N. 60K81.04 | 4A | 4000x Imanishi | 8"x215/16"x1" | \$ 89.00 |
| O. 70M41.07 | 4A | 6000x Pride | 8"x23/4"x1" | \$119.00 |
| P. 70M41.26 | 4A 4B | 6000x/10,000x Pride | 8"x23/4"x1" | \$124.00 |
| Q. 70M41.08 | 4A | 8000x Pride | 8"x23/4"x1" | \$135.00 |
| R. 60K81.08 | 4B | 8000x Imanishi | 8"x215/16"x1" | \$109.00 |
| S. 70M41.10 | 4B | 10,000x Pride | 8"x23/4"x1" | \$198.00 |
| T. 60K82.10 | 4A | 10,000x Sigma | 81/4"x3"x1" | \$149.00 |
| U. 60K82.13 | 4B | 13,000x Sigma | 81/4"x3"x1" | \$169.00 |

Maintaining Ceramic Stones

As with all types of water stones, ceramic stones require regular flattening to stay in top condition for sharpening. A diamond plate or truing stone (shown on the previous page) permits quick flattening of all types of ceramic stones. Ceramic stones should not be stored in water but rinsed and dried after use to avoid the growth of unwanted organics.

- | | | | | |
|----------|---|------------------------------------|------------------|----------|
| 70M41.00 | 1 | Pride Silicon Carbide Truing Stone | 9"x3"x3/4" | \$ 42.50 |
| 08M15.30 | 1 | Silicon Carbide Truing Stone | 9"x3"x3/4" | \$ 59.90 |
| 60K82.32 | 1 | Atoma 400x Diamond Plate | 81/4"x3" x25/64" | \$129.00 |



Oil Stones



What Are Oil Stones?

Oil stones are the original western sharpening medium. In most cases, they were natural stones mined from local rock and flattened for use in sharpening. Today, oil stones are often man-made using aluminum oxide as an abrasive. They require an oil lubricant to keep the stone from clogging and glazing over in use. A honing oil or a light mineral oil provides the right amount of viscosity to keep the stone cutting.

Oil stones cut more slowly than water stones and wear much more slowly, only occasionally requiring flattening on a diamond plate. Oil stones are a great option where water is not suitable, such as at the cottage or in the garden shed, where freezing could damage a saturated water stone.

Arkansas Oil Stones

The traditional Arkansas oil stones cut at a moderate speed and wear slowly. These stones are hard to find today and are cut from flawless natural novaculite in Percy, Arkansas.

Natural stones come in grades rather than grits, as the stones typically contain a range of particle sizes within the same stone. The soft grade of stone is a medium option for grinding or shaping the bevel of woodworking tools as well as gardening tool edges. The hard stone is best suited for general sharpening for carpentry work. The hard black stone is used to produce an extra-fine finish when honing woodworking tools and knives.

Many woodworkers using oil stones finish with a strop to produce an edge as keen as would be produced by the finest ceramic stones.

Each stone comes in a fitted wooden box. The larger stones are better suited to those using a honing guide for wide blades.

- | | | | |
|-------------|------------------------|------------|----------|
| A. 70M40.04 | 2A Soft (Medium) | 8"×2"×1/2" | \$ 50.95 |
| B. 70M40.05 | 2A Soft (Medium) | 8"×3"×1/2" | \$ 76.90 |
| C. 70M40.14 | 2C Hard (Fine) | 8"×2"×1/2" | \$ 58.50 |
| D. 70M40.24 | 3C Hard Black (X-Fine) | 8"×2"×1/2" | \$143.00 |
| E. 70M40.25 | 3C Hard Black (X-Fine) | 8"×3"×1/2" | \$237.00 |

F. Honing Oil

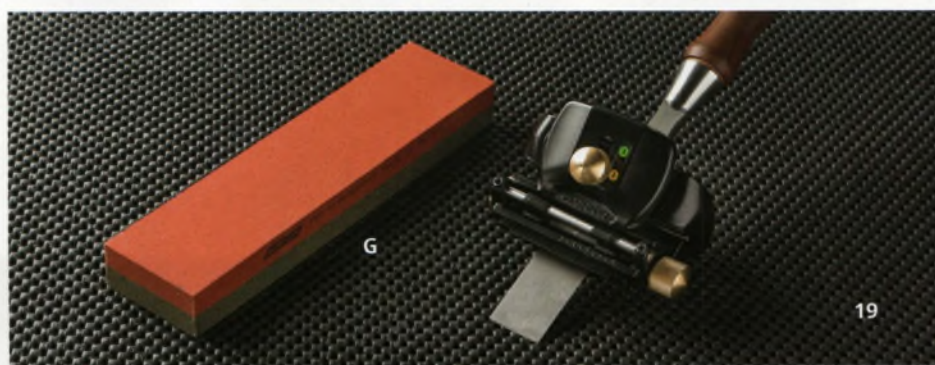
Never use Arkansas or aluminum oxide stones without a lubricating oil. A good light mineral oil keeps metal particles from glazing the stone.

- | | | |
|----------|-----------------------|--------|
| 08M02.03 | Honing Oil, 4.5 fl oz | \$9.50 |
|----------|-----------------------|--------|

Man-Made Combination Oil Stones

This man-made bench stone is for basic work to bring an edge to a condition ready for final honing or general carpentry. The 90x/600x combination provides a coarse and a medium surface.

- | | | | |
|-------------|---------------------|----------|---------|
| G. 08M04.01 | 1 2A 90x/600x Combo | 8"×2"×1" | \$54.50 |
|-------------|---------------------|----------|---------|



Diamond Stones



What Are Diamond Stones?

Diamond sharpening stones are an alternative man-made abrasive bonded to a flat substrate. The premium-quality diamond stones use monocrystalline diamonds, which are highly fracture resistant. Compared to polycrystalline diamonds, monocrystalline diamonds cut more aggressively and fracture less, and therefore last much longer for sharpening applications.

There are two major types of diamond sharpening stones for sharpening edge tools: bench stones that have diamond particles mounted to a plastic substrate with perforations to carry away the filings, and diamond plates that have particles mounted

directly to a steel plate. Both are excellent for most sharpening needs and will last for years in most woodworking shops. While both formats are very flat, the steel plates provide a more solid and stable surface.

Diamond stones are simple to use and keep clean, requiring only a bit of water for lubrication and to carry away the filings. Perforations on the bench stones can collect the filings and keep them from accumulating on the surface, requiring a bit less water flushing than the diamond plates. Diamond stones can be used dry but will need regular cleaning to remove build-up of filings.

Diamond Plates & Stones for Shaping the Primary Bevel

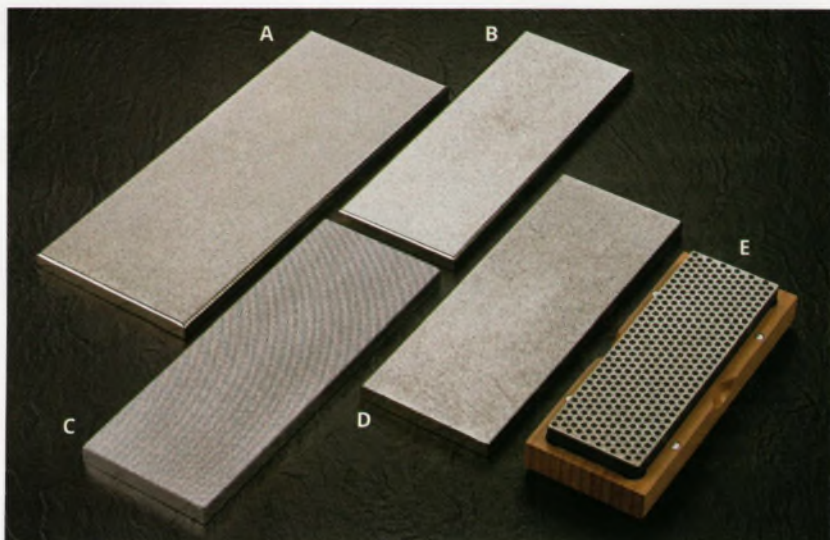
Diamond bench stones are available in very coarse grits such as 120x, 140x and 220x and are excellent for grinding or shaping the bevel of your blade. They abrade steel quickly and last for many years with regular use. Unlike other man-made stones, these wear so little during the grinding process that they should never require flattening. Plate tolerance noted in brackets.

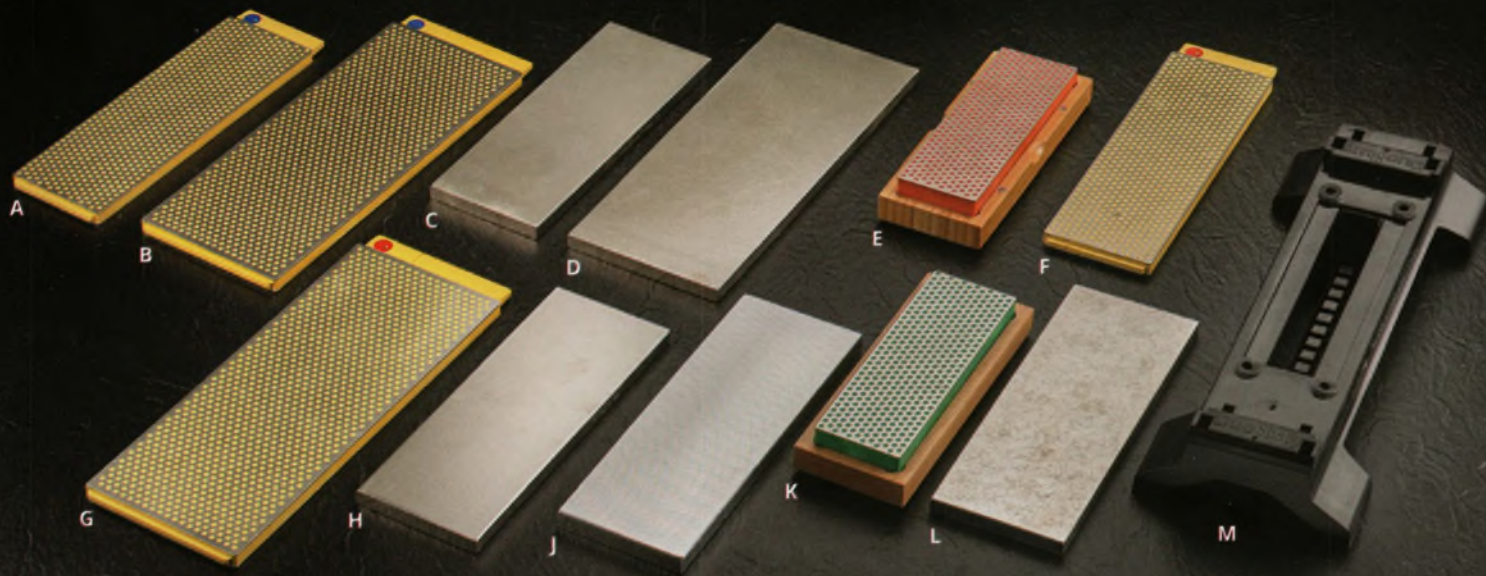
A. 70M14.40	120x DiaFlat Lapping Plate	4"x10" (±0.0005")	\$259.00
B. 70M14.20	120x DiaSharp Stone	3"x8" (±0.001")	\$134.00
C. 60K82.30	140x Atoma Plate	3"x8 1/4" (±0.04mm)	\$139.00
D. 70M14.21	220x DiaSharp Stone	3"x8" (±0.001")	\$ 92.00
E. 70M06.01	220x DMT Stone	6"x2"	\$ 74.00



Diamond Stones Can Provide Years of Service

Diamond stones are known to be fast cutting and long lasting, requiring virtually no maintenance. An occasional wipe after use is often all that's necessary. Diamond stones have a breaking-in period when they produce a pronounced scratching feeling in use. Over time, this roughness will diminish and the stone will feel smooth; many woodworkers mistake the stone as worn out at this point, but in fact, diamond bench stones of all grits should provide years of regular use. A quick test to see if a diamond stone is still cutting is to slide a glass bottle over the surface of the stone; if the bottle is easily scratched, the stone still cuts and can be used to sharpen tools.





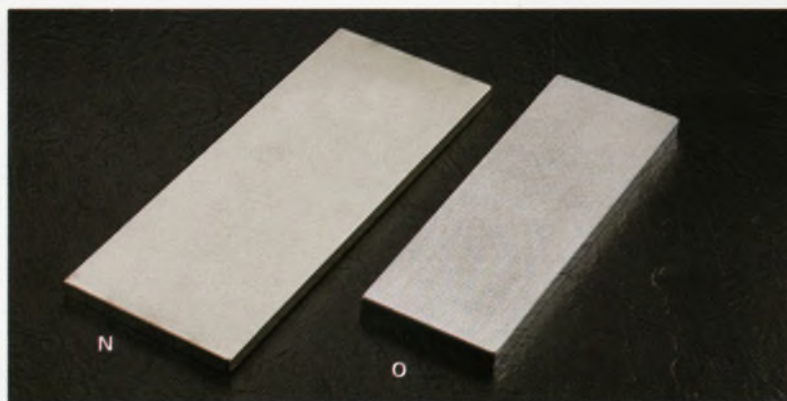
Diamond Plates & Stones for Honing Your Blades

Diamond bench stones are available in a range of grits, making them a good choice for all your honing needs. A medium grit of 600x is suitable for shaping, while the finer grits of 1200x and 8000x are an alternative to traditional sharpening stones.

These diamond stones can be used with water, oil or no lubricant, which makes for easy, no-mess sharpening. A double-sided medium/extra-fine (600x/1200x) stone makes an excellent single-stone sharpening choice, fitting easily in a toolbox for honing on the jobsite or at the cottage. Plate tolerance noted in brackets.

A. 70M04.10	1 3A	325x/1200x DMT Combo	8"x25/8"	\$135.00
B. 70M04.19	1 3A	325x/1200x DMT Combo	10"x4"	\$189.00
C. 70M14.23	2A	600x DiaSharp	3"x8" (±0.001")	\$ 92.00
D. 70M14.33	2A	600x DiaSharp	4"x10" (±0.001")	\$159.00
E. 70M06.02	2A	600x DMT	6"x2"	\$ 74.00
F. 70M04.11	2A 3A	600x/1200x DMT Combo	8"x25/8"	\$135.00
G. 70M04.20	2A 3A	600x/1200x DMT Combo	10"x4"	\$189.00
H. 70M14.24	3A	1200x DiaSharp	3"x8" (±0.001")	\$ 92.00
J. 60K82.34	2C	1200x Atoma Plate	3"x8 1/4" (±0.04mm)	\$129.00
K. 70M06.03	3A	1200x DMT	6"x2"	\$ 74.00
70M14.26	3C	4000x DiaSharp	3"x8" (±0.001")	\$139.00
L. 70M14.25	4A	8000x DiaSharp	3"x8" (±0.001")	\$139.00
M. 70M04.30		Stand for 6", 8" & 10" DMT Stones		\$ 26.90

A diamond combination stone or a couple of small diamond hones makes a versatile choice for a toolbox or home and garden sharpening. They need no lubricant and are durable enough to withstand being knocked around.



A Coarse Diamond Plate Has Many Uses

Many woodworkers use a coarse diamond plate (400x to 600x) to flatten water and ceramic stones. It also doubles as a grinding option for putting a new primary bevel on a blade. Because diamond stones do not wear as quickly as coarse ceramic and water stones, they can be used for grinding without needing to be flattened afterwards. Being useful for both grinding/shaping the bevel and flattening other stones makes the addition of a coarse diamond plate an easy choice when developing your sharpening workflow. Plate tolerance noted in brackets.

N. 70M14.32	1	325x DiaSharp Stone	4"x10" (±0.001")	\$159.00
O. 60K82.32	1	400x Diamond Plate	3"x8 1/4" (±0.04mm)	\$129.00

EZE-Lap Diamond Hones

These versatile hones are an effective and portable way to touch up blades. They are made from a combination of polycrystalline and monocrystalline diamonds to provide a balance between rapid cutting and durability. The monocrystalline particles cut aggressively but round over time through wear, eventually diminishing cutting speed. While less durable, polycrystalline diamonds fracture to expose new, sharp cutting edges so they continue to cut with speed, although with a finer, less aggressive scratch pattern.

The paddle hones have a slim profile to get into small places while the folding hones have a protective cover that serves as a handle when open and are only 5" when closed. Both styles come in a variety of grits, with the coarse 250x for fast material removal and a 600x for general sharpening. The 1200x grit is to put a fine edge on household tools or kitchen cutlery. The paddle hone also comes in a 150x extra-coarse to quickly remove material when repairing a nicked blade.

P. 70M02.18	1 2A	250x/600x (60μ/30μ) Folding Double-Sided	\$55.50
Q. 70M02.15	2C	1200x (15μ) Folding Single-Sided	\$34.50
R. 70M02.21	1	150x (150μ) Paddle	\$19.50
S. 70M02.22	1	250x (60μ) Paddle	\$16.50
T. 70M02.24	2A	600x (30μ) Paddle	\$11.50
U. 70M02.25	2C	1200x (15μ) Paddle	\$11.50
70M02.30		Set of all 4 Paddle Hones	\$53.50



Other Sharpening Media Options



Sharpening Media Come in Many Forms

Beyond traditional sharpening stones, there are many other forms of abrasive sharpening media available.

Film-based and paper-based abrasives can be attached to a flat substrate such as glass or granite and used in much the same way as stones to sharpen blade edges. Film-based abrasives have the added benefit of flexibility, allowing them to be adhered to shaped materials such as a dowel to sharpen edges of different shapes of carving tools.

Powders and pastes come in a range of grits, from very coarse to support stone flattening to ultra-fine grits designed to get that razor edge.

Silicon Carbide Lapping Grits

Silicon carbide is an excellent abrasive for flattening water and oil stones. Using water or oil as a lubricant, the grit is sprinkled on a tempered glass lapping plate, and the stone is moved around on the grit until it is flat. Best practice is to mark the surface of the stone with a pencil to ensure the entire surface is flattened. Adding a removable plastic laminate sheet will protect the glass from being

abraded by the grit, preserving its flatness.

The 90x grit is the most popular size for flattening stones or general lapping. The set of five grits includes 2 oz containers of 90x, 180x, 280x, 400x and 600x. The 600x will enable you to lap a plane bottom to a silky smooth finish.

- | | | |
|-------------|------------------------------|---------|
| A. 05M24.01 | 90x Lapping Grit, 4 oz | \$ 9.50 |
| B. 05M01.01 | Set of 5 Lapping Grits | \$34.90 |
| C. 05M20.11 | 4 Laminate Sheets 8 1/2"x14" | \$22.50 |
| D. 05M20.12 | Glass Plate 8 1/2"x14"x1/4" | \$22.70 |

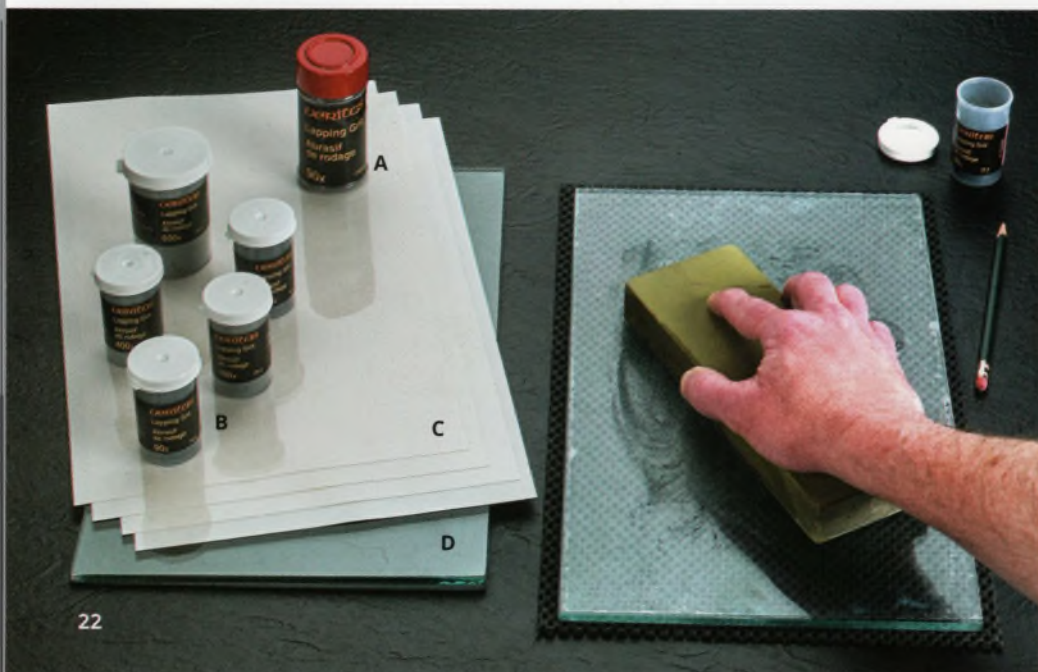
Diamond Paste

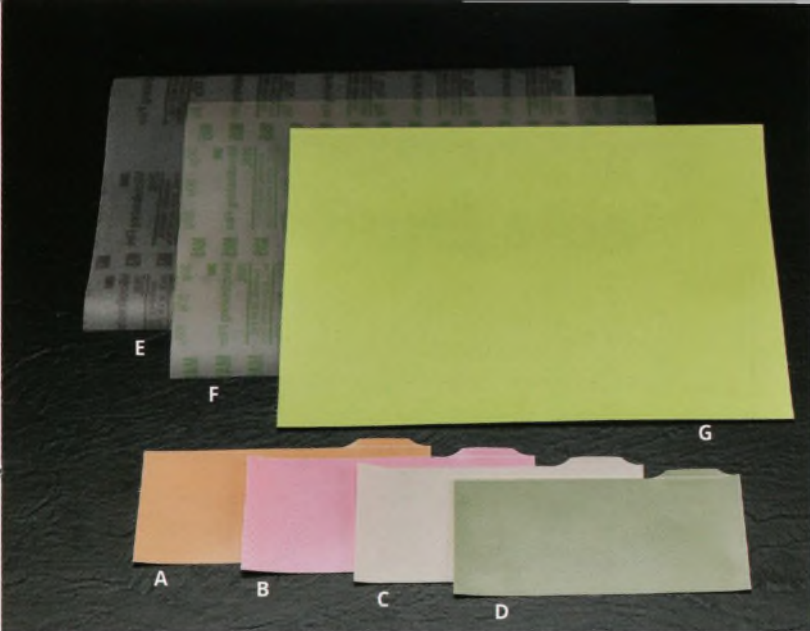
Diamond paste is composed of monocrystalline diamonds in a mineral oil base, allowing the paste to embed in a base of close-grained hardwood or MDF. A machined flat steel plate also provides an excellent and stable substrate for diamond paste. Just add a few drops of paste and use it much the same as a honing stone. The ultra-fine grits permit polishing to an exceptionally keen edge.

Diamond paste provides an excellent alternative to buying an ultra-fine ceramic stone if only needed for occasional use for polishing an edge. Begin with the grit that corresponds to your finest stone and progress to finer paste: 6μ following a fine stone, 3μ after the 6μ paste or an extra-fine stone, and 1μ for a mirror finish.

The paste comes in 2g (0.07 oz) syringes and is sold individually or as a set.

- | | | |
|-------------|-----------------------------|---------|
| E. 70M14.06 | 6μ Paste 2g (0.07 oz) | \$24.50 |
| F. 70M14.03 | 3μ Paste 2g (0.07 oz) | \$24.50 |
| G. 70M14.01 | 1μ Paste 2g (0.07 oz) | \$24.50 |
| 70M14.10 | Set of all 3 Diamond Pastes | \$68.50 |





Diamond Lapping Film

This film is one of the most aggressive sharpening media we've tested. Used in the electronics industry for polishing fiber-optic components and computer hard drive heads, this durable, fast-cutting film is truly remarkable for sharpening edge tools. The monocrystalline diamond particles have outstanding fracture resistance and are precisely graded for size – a combination of properties that yields an abrasive that cuts at an impressive rate yet wears slowly and produces a highly regular scratch pattern. This makes it important to work through the grits in sequence: first the 15 μ film for shaping the primary bevel, then the 3 μ for establishing a micro-bevel, and then the 0.5 μ and 0.1 μ sheets for polishing and refining the edge. The 15 μ (approximately 1000x) diamond film abrades O1, A2 and M2 steels about twice as quickly as a similar-grit silicon carbide film or a water stone; successive diamond grits are comparably fast. It can take as few as four to six strokes on each grit to reach a finished edge. The 3"x6" PSA-backed polyester sheets are not only valuable for routine sharpening in the workshop, but are much more portable than stones, so you can readily sharpen wherever you happen to be working. Applied to a flat substrate, they can be used with water, but we have found a light oil is best for carrying away the swarf. These are excellent additions to any sharpening regimen. These sheets can be attached to shaped substrates such as a dowel to provide a custom hone for curved blades or carving tools. Available individually or as a set of all four grits.

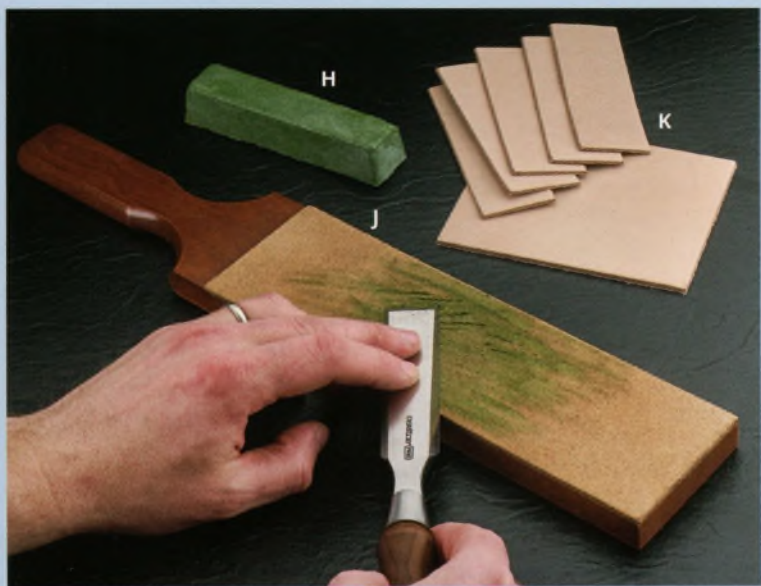
- | | | | | |
|-------------|----|--------------------------------------|-------|---------|
| A. 54K96.08 | 2C | 15 μ PSA Diamond Film | 3"x6" | \$10.70 |
| B. 54K96.05 | 4A | 3 μ PSA Diamond Film | 3"x6" | \$10.70 |
| C. 54K96.02 | 4C | 0.5 μ PSA Diamond Film | 3"x6" | \$14.90 |
| D. 54K96.01 | 4C | 0.1 μ PSA Diamond Film | 3"x6" | \$14.90 |
| 54K96.30 | | PSA Diamond Film, set of all 4 grits | | \$46.00 |



Aluminum Oxide Sharpening Films

Precisely graded for size and densely applied in a closed coat, the aluminum oxide abrasive in this film is highly fracture resistant. These characteristics result in a medium that is quick cutting and long lasting and produces an exceptionally consistent scratch pattern. All grits have a 3-mil polyester sheet that resists tearing and is PSA-backed for mounting on flat or contoured surfaces to create specialized hones in a range of shapes and sizes. Since the 8 1/2"x11" film is much more portable than a full-size stone, it is an excellent addition to a travelling toolkit. It can be used with water, but we have found a light oil is best for carrying away the swarf. The 100 μ is for significant material removal (lapping or removing nicks), the 30 μ (equivalent to a 400x water stone) is for working the primary bevel, and the 1 μ (slightly finer than 8000x) polishes to a finished edge. Sheets can be cut to any size for a multitude of applications.

- | | | | |
|-------------|----|----------------------------|--------|
| E. 54K96.50 | 1 | 100 μ Film, 8 1/2"x11" | \$7.90 |
| F. 54K96.54 | 2A | 30 μ Film, 8 1/2"x11" | \$7.90 |
| G. 54K96.58 | 4B | 1 μ Film, 8 1/2"x11" | \$7.90 |



To Strop or Not to Strop

Many woodworkers include a stropping step in their sharpening workflow. Stropping involves pulling a sharpened blade across a flat surface such as wood or leather to refine the edge after honing, and may involve honing compound. This is an effective technique when sharpening softer steels or using medium-grit stones to hone the edge. Since the particle size of most honing compounds is close to that of the finest ceramic stones, an edge will not benefit from stropping if polished on a stone of 10,000x or above.

Stropping can provide a quick tune-up of a dulling edge once or twice before honing is necessary; indeed, many carvers use only a strop to tune up their edges after an initial sharpening. Most cutlery can also benefit from a strop between honings to keep the edge keen.

Our stropping supplies can be used with or without honing compound. The strop pack of six includes five 4 1/2"x1 1/2" strops and one 4"x5" piece.

- | | | | |
|-------------|----|---|---------|
| H. 05M08.01 | 4C | Veritas 0.5 μ Honing Compound, 6 oz | \$21.50 |
| J. 33K91.10 | | Leather Strop, 10"x3" | \$47.50 |
| K. 70M03.58 | | Leather Strop Pack of 6 | \$29.00 |



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Abrasive Grit Sizes and Sharpening Media Equivalents

All abrasive sharpening media have an effective (or actual) micron grit size for the particles they are made from. This grit size determines where the media fit in the sharpening process. Moving from a damaged edge to an ultimate edge involves four stages of sharpening:

- 1. Shaping:** establishing the basic profile of the tool, usually only required after major damage
- 2. Grinding:** establishing the geometry that defines the edge – bevels and relief
- 3. Honing:** preparing the blade for use
- 4. Polishing:** imparting a keener edge to a honed blade

We divided our chart into grit ranges appropriate for each sharpening stage, with the last three ranges split into three sub-ranges (low, medium and high, designated by letters A, B and C). This simplifies comparing different products by grouping them together in bands based on micron size. All products we sell have been graded with a range code (listed below). You can see the full version of this chart by searching for “grit chart” on our website. More detail on the background and use of the chart can be found on page 3.

Sharpening Stage	Range Code	Grit Range (μ)	Stones	Papers/Films/Grit/Compound
Shaping 30.1–150	1	30.1–150	EZE-Lap 150 (141), Shapton Kuromaku 120 (122.5), Shapton GS 120 (122.5), DMT 120 (120), DiaFlat 120 (120), DiaSharp 120 (120), Coarse India (102), Atoma 140 (100), 3M 100μ (100), King 250 (80), King 200 (74), Shapton Kuromaku 220 (66.82), Shapton GS 220 (66.82), Norton 220 (65), Sigma 240 (60), EZE-Lap 250 (60), DMT 220 (60), DiaSharp 220 (60), Pride Abrasive 220 (55), Shapton Kuromaku 320 (45.94), Shapton GS 320 (45.94), Atoma 400 (45), DMT 325 (45), DiaSharp 325 (45), RockStar 320 (40), Fine India (35)	90x (150), 100x (141), P120 (125), 120x (116), P150 (100), 3M 100μ Film (100), 150x (93), P180 (82), 180x (78), P220 (68), 220x (66), P240 (58.5), 240x (53.5), P280 (52.2), P320 (46.2), 280x (44), P360 (40.5), 320x (36), P400 (35), P500 (30.2)
	2A	20.1–30	EZE-Lap 600 (30), Shapton GS 500 (29.4), RockStar 500 (25), Shapton GS7 25.0μ (25), DMT 600 (25), DiaSharp 600 (25), Pride Abrasive 600 (24), Soft Arkansas (22)	3M 30μ Film (30), 360x (28.8), P600 (26), P800 (21.8)
	2B	15.1–20	King 800 (20), Bester 700 (17), King 1000 (16)	500x (19.7), P1000 (18.3), 600x (16), P1200 (15.3)
Grinding 10.1–30	2C	10.1–15	Atoma 1200 (15), EZE-Lap 1200 (15), Shapton Kuromaku 1000 (14.7), Shapton GS 1000 (14.7), Sigma 1000 (14), Pride Abrasive 1000 (14), Norton 1000 (14), King 1200 (13), Shapton GS7 11.5μ (11.5), Bester 1000 (11.5), Hard (Fine) Arkansas (11.5), RockStar 1000 (11)	3M 15μ Film (15), P1500 (12.6), 800x (12.2), P2000 (10.3)
	3A	8.01–10	Shapton Kuromaku 1500 (9.8), DMT 1200 (9.2), DiaSharp 1200 (9.2)	1000x (9.2), 3M 9μ Film (9), P2500 (8.4)
	3B	6.01–8	Shapton Kuromaku 2000 (7.35), Shapton GS 2000 (7.35), Sigma 3000 (7), Shapton GS7 6.70μ (6.7), Bester 2000 (6.7)	P3000 (7), 1200x (6.5)
Honing 3.01–10	3C	3.01–6	RockStar 2000 (6), Norton 4000 (6), Hard Black Arkansas (6), Pride Abrasive 3000 (5), Shapton GS 3000 (4.9), King 4000 (4.5), RockStar 3000 (4), Shapton GS7 4.00μ (4), Shapton GS 4000 (3.68), DiaSharp 4000 (6)	6μ Diamond Paste (6), 3M 5μ Film (5), P5000 (5)
	4A	1.51–3	RockStar 4000 (3), Shapton GS7 3.00μ (3), Imanishi 4000 (3), Pride Abrasive 6000 (3), Norton 8000 (3), DMT 8000 (3), DiaSharp 8000 (3), Shapton Kuromaku 5000 (2.94), Shapton GS 6000 (2.45), RockStar 6000 (2), Shapton GS7 2.00μ (2), Pride Abrasive 8000 (2), King 8000 (2), Shapton Kuromaku 8000 (1.84), Shapton GS 8000 (1.84), Sigma 10000 (1.5)	3μ Diamond Paste (3), 3M 3μ Film (3)
	4B	0.76–1.5	RockStar 10000 (1.47), Shapton GS 10000 (1.47), Shapton GS7 1.20μ (1.2), Imanishi 8000 (1.2), Pride Abrasive 10000 (1.2), RockStar 8000 (1), Shapton Kuromaku 12000 (1), RockStar 16000 (0.92), Shapton GS 16000 (0.92), Sigma 13000 (0.9), Shapton GS7 0.85μ (0.85)	1μ Diamond Paste (1), 3M 1μ Film (1)
Polishing 0.25–3	4C	0.25–0.75	Shapton Kuromaku 30000 (0.49), Shapton GS 30000 (0.49), Shapton GS7 0.44μ (0.44)	3M 0.5μ Film (0.5), Green Compound (0.5), 3M 0.3μ Film (0.3)

Numbers in red are the effective particle size in microns.